Quality Management Plan

for the Puget Sound Partnership

April 2014

PugetSoundPartnership

LEADING PUGET SOUND RECOVERY

Publication & Contact information

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Purpose of the *Quality Management Plan*

The Puget Sound Partnership is charged with overseeing the restoration of Puget Sound. This work requires the Partnership to compile, assess, collect, and report on environmental and other data and technical information, and also use data and technical information to inform the public, make decisions, recommend actions, measure performance, and track implementation. The Puget Sound Partnership *Quality Management Plan* describes the agency's processes and policies to ensure that the quality of the data and technical information is commensurate with the actions and decisions undertaken by the Partnership.

This plan applies to all Partnership staff, contractors, and grant recipients.

Chapter 1: Introduction

1.1 Background

The Puget Sound Partnership (PSP) *Quality Management Plan* (QMP) is a key component of the quality system established in PSP's policy 700-A, *Establishing Quality Assurance* (Puget Sound Partnership, 2013). This policy can be found in Appendix A.

The QMP enhances the credibility and defensibility of PSP products. It is required of all recipients of EPA funding that is intended to "produce, collect, or use environmental data on behalf of EPA." (*Draft Handbook for Preparing Quality Management Plans*, 2012, p.1). PSP also expands the scope of the QMP to govern collection and use for data and technical information that addresses major policy issues, such as human behavior, finance, and performance.

PSP has based its *Quality Management Plan* on EPA's *Draft Handbook for Preparing Quality Management Plans*, 2012. The *Quality Management Plan* addresses the requirements of CIO Standard 2106-S-02, which addresses how "non-EPA organizations operating under an external agreement with EPA [are] to develop, document, and implement a Quality Management System that conforms to applicable EPA policies and procedures".

1.2 Objectives

PSP's Quality Management System (QMS) is intended to ensure that the data that the agency uses in its decision-making processes has known and documented quality and is being used appropriately. PSP's QMS is also intended to ensure that all relevant documents and publications produced by PSP meet the established quality standards. This plan lays out how PSP will plan, implement, and assess the effectiveness of our Quality Management System. It also documents the roles and responsibilities of PSP's staff.

The other element of the QMS is the QAPP process, described in Chapter 5 of this plan, and in the forthcoming *Puget Sound Partnership QAPP Guidelines* (intended for publication in Spring 2014).

PSP uses a graded approach to quality management, described by the Washington State Department of Ecology as an approach "in which projects of different sizes, levels of risk, and rigor call for differing approaches to QA documentation. Generally speaking, the larger the project and the more call for risk it carries, the more detailed and rigorous the quality documentation should be." (*Quality Management Plan*, Washington State Department of Ecology, October 2010).

1.3 Intended Audience

The intended audience for this *Quality Management Plan* includes:
- PSP staff with roles described in Section 3.2 and identified in Appendix B, the organizational chart
- PSP staff that generate or analyze data and technical information, model the environment, or use data and technical information as part of any analysis, communication, or decision-making process.
- PSP contractors and grant recipients who work with data and technical information

More general audiences with an interest in environmental decision making related to Puget Sound will likely be part of the readership of this plan.

1.4 Supersession

This document is the first PSP *Quality Management Plan* and supersedes all previous agency documentation prepared on quality.

1.5 Period of Applicability

The period of applicability for this *Quality Management Plan* is five years from the date of publication. At the end of that period, Puget Sound Partnership will do one of the following: reissue the QMP without changes, revise and reapprove the QMP, or rewrite the QMP.

1.6 Conformance

This Quality Management Plan conforms to (or is consistent with):

- ISO 9001 (Current Edition), *Quality Management Systems – Requirements* [ISO 2008]
- *Uniform Federal Policy for Implementing Environmental Quality Systems*
- (EPA-505-F-03-001) (Current Edition) [EPA 2005]
- CIO Standard 2106-S-02.
- Draft Handbook for Preparing Quality Management Plans, 2012
- EPA, 2013. Policy to Assure the Competency of Organizations Generating Environmental Measurement Data under Agency-Funded Assistance Agreements. http://www.epa.gov/fem/pdfs/competency-policy-aaia-new.pdf

1.7 Legal Basis for PSP's Quality Assurance Program

EPA requires PSP to document its quality system in an approved Quality Management Plan, per the requirements of CIO Standard 2106-S-02, which addresses how "non-EPA organizations operating under an external agreement with EPA [are] to develop, document, and implement a Quality Management System that conforms to applicable EPA policies and procedures".

Chapter 2: Quality Management System Guidelines

2.1 Policy
PSP's *Quality Management Plan* is based on EPA and PSP policy. The *Draft Handbook for Preparing Quality Management Plans* (2012) states that any environmental data generation funded by EPA must be performed using an appropriate quality management plan. PSP Policy 700-A, *Establishing Quality Assurance*, requires the development of QAPPs for all generation or quantitative analyses of environmental data by PSP or PSP's contractors or grant recipients. Those parties will collect data and technical information using standard operating procedures or documented protocols, and share those standards with PSP prior to doing the work.

Any field and laboratory work performed on behalf of PSP will conform with the following policies:
- EPA, 2011. Policy to Assure Competency of Laboratories, Field Sampling, and Other Organizations Generating Environmental Measurement Data under Agency-Funded Acquisitions http://www.epa.gov/fem/pdfs/fem-lab-competency-policy.pdf
- Ecology, 2008a. Policy 22-02, Requiring Use of Accredited Environmental Laboratories. Washington State Department of Ecology, Olympia, WA. http://www.ecy.wa.gov/programs/eap/qa/docs/pol22-02.pdf

2.2 Purpose
The *Quality Management Plan* is intended to ensure that data and technical information that are generated or analyzed by PSP, or by contractors or grant recipients on behalf of PSP, are of documented and appropriate quality and usability. PSP's quality system touches many aspects of agency operations including:
- Project planning (QAPPs and other project plans)
- Document development (major reports and SOPs)
- Data management and GIS
- Purchasing and contracting
- Field sampling and analytical procedures

2.3 Applicability
PSP's *Quality Management Plan* is applicable to all PSP staff that generate or analyze data and technical information, model the environment, or use data and technical information as part of any analysis, communication, or decision-making process. It also applies to PSP contractors and grant recipients who perform the same work on behalf of the agency.

2.4 General Content and Detail Requirements
The required contents of all *Quality Management Plans* are defined by EPA (2012). PSP has complied with the requirements laid out in the *Draft Handbook for Preparing Quality Management Plans*, 2012.

2.5 Preparation
PSP's Executive Director is responsible for the preparation of the *Quality Management Plan,* and can delegate that responsibility to the QA Manager or QA Assistant at his or her discretion.

2.6 Submission and Approval
The *Quality Management Plan* must be approved by the following:
- Executive Director of Puget Sound Partnership
- The Quality Manager of Puget Sound Partnership
- EPA Region 10 Quality Assurance Manager

2.7 Plan Revisions
Per EPA requirements, PSP will formally revise the *Quality Management Plan* on a five-year cycle. However, PSP reserves the right to review and update the *Quality Management Plan* as needed to address changes in work or mission, changes in roles and responsibilities, the results of audits or assessments, or any other significant changes or assessments within the agency.

2.8 Self-Assessment & Improvement
The effectiveness of the quality system is continuously evaluated. Available assessment tools include data quality assessments, peer reviews and technical reviews, proficiency testing studies, and technical systems audits. Technical audits and assessments (1) provide management with tools to determine whether data collection activities are implemented as planned, and (2) are the basis for taking action to correct any deficiencies that are identified.

The project manager is responsible for assuring that data quality (or usability) assessment is done for each project that involves environmental data. Data quality assessment is a statistical and scientific analysis and evaluation of data to determine if data are of the right type, quality, and quantity to support their intended use. A recommended reference is EPA Document QA/G-9, *Guidance for Data Quality Assessment: Practical Methods for Data Analysis.*

Prior to initiating internal assessments, PSP management is responsible for identifying goals, choosing the assessors, defining acceptance criteria, determining the assessment procedures to be used, and approving check lists. Every year, the Executive Director and the QA Manager will assess the adequacy of the quality system; every three years, they review the *Quality Report to Management*. Reports of assessments are prepared and submitted to management. When the assessment findings identify conditions needing corrective action, management responds promptly and appropriately. Corrective actions are documented by the responsible persons in order to confirm the implementation and effectiveness of the response action. Senior management is responsible for addressing any disputes concerning the assessments.

The QA Manager keeps the Executive Director informed of QA accomplishments and any problems that arise. The QA Manager discusses any relevant QA issues or problems with the appropriate Program Manager and/or program QA Coordinator.

The QA Assistant prepares a status report, *Quality Report to Management*, every three years. This report contains, as a minimum, the following information:
- A description of QA/QC training received by PSP staff.
- A description of technical assistance and QA/QC support provided to PSP staff.
- Significant problems related to data quality and recommended corrective actions.
- A description of the status and needs of documented information on QA/QC.
- A description of the status and needs of human resources to implement the quality system.

- A review of PSP's *Quality Management Plan* to determine if the approved quality management practices continue to be both suitable and effective.
- Other information specifically requested by management.

Chapter 3: Quality Management Plan Essentials

3.1 Content Requirements
The *Draft Handbook for Preparing Quality Management* Plans (2012, pp. 10-36) contains requirements for quality management plan content and format. PSP has written this document to address the topic areas in that document.

3.2 Organization, Responsibility, and Authority
Policy 700-A, adopted August 9, 2013, applies to data generation and analysis conducted or funded by PSP. It is the responsibility of PSP management to promote the commitment to data and technical information quality laid out in that document, and the responsibility of all PSP staff to ensure that colleagues, partners, contractors, and grant recipients adhere to those commitments. A copy of the policy is included as Appendix A.

3.2.1 Executive Director. PSP's Executive Director has ultimate responsibility and authority for the Quality Management System. The Executive Director:
- Serves as a champion of the Quality Management System
- Ensures that the Quality Management Plan updated every five years
- Reviews and responds to findings of the QA Manager as required
- Ensures that quality management positions are filled by qualified staff who are supported by their management chain
- Actively participates in specific Quality Management System functions such as training and assessments
- Builds quality-related commitments into the organization's employee performance appraisal system

3.2.2. Assistant Director. PSP's Assistant Director is responsible for coordinating and conducting, when necessary, audits of agency QA operations and project reports.

3.2.3 Quality Assurance Manager. PSP's Quality Assurance (QA) Manager, who is designated by PSP's Executive Director, coordinates major QA activities throughout the agency. The QA Manager role is held by PSP's Science Director. The role of the QA Manager is independent of his or her other roles and responsibilities within the agency, and the QA Manager reports only to the Executive Director on quality issues.

The QA Manager (or his or her designee) is responsible for:
- The development of the *Quality Management Plan*, as delegated by the Executive Director
- Acting as chief QA liaison for inquiries, both internal and external to PSP, regarding the agency's Quality Management System
- Leading a QA Team, made up of the QA Coordinators as described in section 3.2.5, in reviewing quality-related decisions on at least a semi-annual basis, or more frequently if necessary
- Frequent communication with staff working on quality issues to ensure that technical processes are understood and being followed and prevent the development of conditions that are adverse to quality
- If corrective actions are required, the QA Manager directs those corrective actions to be taken in a timely fashion, confirms the implementation and effectiveness of those actions, and

documents as required. This can be done with assistance from the Executive Director and Assistant Director if necessary.

- Identifying, developing, and approving any necessary SOPs
- An annual meeting with the Executive Director regarding the Quality Management System and any necessary updates, and informing the Executive Director of QA/QC issues on an ad-hoc basis as needed
- Reviewing the three year *Quality Report to Management* and taking action as needed

The QA Manager has work-stop authority when reports contain demonstrable errors.

3.2.4 QA Assistant. PSP's Quality Assurance (QA) Assistant, who is designated by PSP's Executive Director, coordinates minor QA activities throughout the agency. The QA Assistant is responsible for:

- Assisting PSP staff with preparing documents involving the application of the QA and QC principles
- Coordinating training on QA and QC principles and practices to meet the needs of PSP staff
- Preparing a *Quality Report to Management* every three years

3.2.5 QA Coordinators. Managers for PSP's data- and-technical-information involved programs, including the Finance Team, Information Technology Team, Science Team, Performance Management Team, The Ecosystem Recovery Team, and Sound-wide and Functional Programs Team must each delegate one Quality Assurance (QA) Coordinator for their programs. The QA Coordinators are responsible for:

- Acting as point of contact within their programs for data and technical information quality on issues
- Coordinating with the agency QA Manager to identify needs related to QAPP preparation and SOP preparation and maintenance
- Assisting the NEP Quality Coordinator with review and approval of QAPPs prepared within their programs
- Assisting project managers who oversee the preparation of QAPPs submitted to PSP by responsible parties, contractors, and grant recipients
- Assisting program staff and grant recipients in meeting QA/QC requirements
- Providing technical assistance to program staff who implement QAPPs and assess the quality of the results obtained
- Assisting the QA Assistant with preparing and presenting QA/QC training for program staff
- Providing information to the QA Assistant for the *Quality Report to Management*

3.2.6 NEP Quality Coordinator. Currently, the NEP Quality Coordinator, who is under contract with PSP from Ecology, will review and sign QAPPs. This position will also serve as technical advisor on quality questions. As PSP's quality system evolves, this work might be assigned to a PSP staff member, for example, the QA Manager.

3.2.7 Project Managers, Project Leads, and Contract Managers. Project managers and project leads have overall responsibility for both specific environmental studies, as well as activities conducted through grants or contracts. They may be responsible for any of the following:

- Preparing QAPPs
- Assisting contractors, grant recipients, and the regulated community with preparing QAPPs
- Reviewing and approving QAPPs prepared by grant recipients and contractors

- Implementing QAPPs, or overseeing the implementation of QAPPs managed by grant recipients and contractors
- Assessing and reporting the quality of data and technical information, based on the quality objectives

3.2.8 QAPP Manager. The QAPP Manager is responsible for overall development and refinement of QAPPs and other project plans for the agency. The QAPP Manager:
- Serves as a resource to QA coordinators and PSP project managers on the development and implementation of QAPPS
- Writes and updates the *Puget Sound Partnership QAPP Guidelines*
- Is responsible for the work detailed in the *QAPP Guidelines*

3.3 Organization Chart
The organization chart in Appendix B presents the roles and lines of authority per the Quality Management System in PSP.

3.4 Dispute Resolution
This section details the process that PSP will follow in the event that there is a dispute over the application of the Quality Management System.

Oversight responsibilities for QA/QC may result in disagreements between the oversight group and the program reviewed. Such disputes may occur in situations involving technical issues (e.g., quality requirements, assessments, audits, surveillance, data and technical information quality (usability) assessments, publications) and management issues (e.g., *Quality Management Plan* reviews, management system reviews).

All parties should make every effort to resolve disputes through discussion and negotiation. If the parties are unable to resolve the dispute, this dispute resolution process should be followed:

1. The process begins when either disagreeing party declares an issue to be unsolvable and sends a memorandum to the other party invoking this dispute resolution process, defining the disputed issue, and presenting supporting arguments for the first party's position on the issue.

2. Within 15 days, the second party must send a draft dispute resolution package to the first party.

3. As soon as possible after this, the two parties, working together, must submit a dispute resolution package to the NEP Quality Coordinator and the Assistant Director. This package would contain all relevant arguments, relevant rebuttals, and any supporting materials.

4. The NEP Quality Coordinator and the Assistant Director shall schedule a meeting for resolving the dispute within 15 days from receipt of the dispute resolution package, and notify both parties of this date. Both parties are invited to attend the resolution meeting to present arguments and answer questions. Management may get advice from a third party.

5. If the issue cannot be resolved at this level, the Executive Director, in consultation with the NEP Quality Coordinator, QA Manager, and the Assistant Director, will make the final decision on disposition of the issue. If the quality dispute involves the QA Manager and/or the Assistant

Director, they will not participate in the final management decision. The final decision of management shall be binding on both parties.

Staff, contractors, and/or grantees involved in a dispute over the application of the Quality Management System should ensure that the dispute is:
- Fully documented
- Resolved at the lowest level possible
- Brought to the attention of management if necessary
- Subsequently tracked to ensure that involved parties adhere to the agreed-upon resolution

3.5 Training
It is crucial that all Partnership management and staff who work with data and technical information – whether in producing, managing, or using data and technical information for decision-making – are aware of the Quality Management System. Staff should be knowledgeable in:
- The content of the QMP
- Technical aspects of QAPPs
- Quality Assessment
- Quality Control
- Up-to-date training in relevant technical fields

The Quality Assurance Assistant is responsible for Quality Management System training at PSP. Training resources can be procured from both inside and outside the agency. Staff are required to renew their QMS training every three years. QMP trainings will include:
- Formal introduction to the Quality Management System, as described in this QMP
- Preparation of QAPPs
- Quality Assessment and Quality Control
- The Peer Review process

Any updated Performance Development Plan (PDP) will include a training plan for relevant quality training, as appropriate. In addition, staff members are encouraged to seek additional training in statistical methods, GIS methods and analysis, research design, data analysis, and other aspects of data and technical information development, management, and analysis relevant to their work.

3.6 External Contractors and Grantees
PSP is responsible for ensuring that its contractors and grantees follow the appropriate quality measures outlined in the *Quality Management Plan*. Functions that PSP is most likely to contract for that would be subject to the quality system include:
- Data collection
- Data analysis
- Information technology support
- Other functions as needed, per the agency's discretion

For the above-listed functions, as needed, PSP will require contractors and grantees to:
- Prepare their own QAPPs as needed
- Develop SOPs for necessary processes and practices
- Commit to fulfilling specific QA and QC requirements, and demonstrate their application
- Make all original and derived data available to PSP staff for review, as requested

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- Submit to audits as requested, or conduct audits of sub-contractors
- Validate data supplied by contract laboratories or other sub-contractors, as necessary or required.
- Issue stop-work orders or requests for corrective actions to sub-recipients

3.7 Planning
Data QA begins with careful planning. The goal and specific objectives for the environmental project are clearly defined, including how the data will be used. Then quality objectives, as well as qualitative and quantitative statements about the data needed to support decisions or regulatory actions, are developed. Finally, the methods to collect samples, make measurements, document data quality, and interpret and report results are selected or developed.

A systematic planning process is recommended. Systematic planning is a process in which the Partnership identifies the problem to be studied and/or the decision to be made. Staff then define the project's objectives; the type, quantity, and quality of information needed; the technical and QC activities; and the level of oversight that will ensure project criteria are satisfied. Additional information on systematic planning processes can be found in the following documents: *Guidance for the Data Quality Objectives Process* (EPA, 2006) and *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies* (Lombard and Kirchmer, 2004).

Preparing a QAPP helps ensure that the project manager follows a systematic planning process. The completed plan (1) facilitates communication among managers, staff, and contractors performing field or laboratory research to implement the project, (2) promotes consistency in data collection activities, and (3) provides the basis for project reports.

The forthcoming *Puget Sound Partnership QAPP Guidelines* (intended for publication in Spring 2014) will provide the project managers with guidance for preparing QAPPs for PSP projects.

Program-specific guidance documents (e.g., standard operating procedures or SOPs) are prepared, when needed, to address the unique QA requirements of Puget Sound Partnership programs.

Chapter 4: Quality Management System Description

The following business functions of the Puget Sound Partnership will adhere to the quality assurance methods as described. As discussed in section 2.7 of this plan, we are on a five-year cycle for updating the QMP and its underlying Quality Management System. However, PSP reserves the right to review and update the *Quality Management Plan* and Quality Management System as needed to address changes in work or mission, changes in roles and responsibilities, the results of audits or assessments, or any other significant changes or assessments within the agency.

4.1 Science
The PSP Science Program undertakes and commissions a variety of project types to develop and implement a strategic science program for the Puget Sound Partnership. For quality assurance purposes, this plan identifies four types of science projects.

4.1.1 Projects that involve collection or analysis of environmental data, or environmental modeling
These projects will adhere to the following quality assurance methods:
- QAPPs, as discussed in Chapter 5 and the forthcoming *Puget Sound Partnership QAPP Guidelines* (intended for publication in Spring 2014), will be developed by or under the direction of the PSP project manager and submitted to PSP's quality manager for review and approval.
  - For EPA-funded but non-NEP projects, QAPPs will be submitted to the EPA Region 10 Quality Assurance Manager for review and approval.
  - For NEP-funded projects, QAPPs will be submitted to the NEP Quality Coordinator for review and approval

  Data collection and analysis will not begin until all approvals have been obtained.
- Data collection and analysis will be conducted by PSP Science staff, contractors, or others per the methods specified and to meet the project and quality objectives described in the QAPP.
- Per PSP's *Guidelines for Scientific Review* (Hamel and Currens, 2012), the PSP project manager will consult with the PSP Science Director to plan an appropriate scientific review for the product.
- The PSP project manager will coordinate with the PSP Science Director and the Science Panel (or their designee) as appropriate to support the scientific review and to ensure that a final product is developed that is responsive to the review.
- The PSP project manager will coordinate with the PSP Science Director, PSP's communications team, and other colleagues as appropriate to develop and follow an appropriate approach for technical editing, fact checking, and policy and stakeholder review.

Assignments in statute to PSP's Science Panel and Executive Director do not include any projects that necessarily involve collection or primary analysis of environmental data by PSP. PSP Science may undertake or commission investigations to address priority science activities in the biennial science work plan; these projects may fall under this section and, if so, would require a QAPP be developed and approved. For example, PSP might commission an investigation, including collection of data about fish condition, into the causes of reduced marine survival of a salmonid species.

4.1.2 Projects involving the collection or analysis of other types of data, policy review and analysis of environmental data, or modeling of non-environmental parameters
Projects that involve collection or analysis of data but do not fall within the definitions of projects needing a QAPP will adhere to the following quality assurance methods:

- The PSP project manager will consult with the PSP QA Manager to determine the need for and approach to developing a project plan to specify:
  - project objectives, organization, and responsibilities
  - sources of data (and data collection approaches if applicable)
  - quality requirements of the data
  - procedures for data reporting, reduction, and validation
- If deemed appropriate by the PSP QA Manager (e.g., when PSP is collecting data or conducting novel analyses of data), a project plan will be developed by or under the direction of the PSP project manager and submitted to PSP's quality manager for review and approval. Data collection and analysis will not begin until this approval has been obtained.
- Data collection and analysis will be conducted by PSP Science staff, contractors, or others to meet project objectives and as described in the project plans (if appropriate).
- Per PSP's Guidelines for Scientific Review (Hamel and Currens, 2012), the PSP project manager will consult with the PSP Science Director to plan an appropriate scientific review for the product.
- The PSP project manager will coordinate with the PSP Science Director and the Science Panel (or their designee) as appropriate to support the scientific review and to ensure that a final product is developed that is responsive to the review.
- The PSP project manager will coordinate with the PSP Science Director, PSP's communications team, and other colleagues as appropriate to develop and follow an appropriate approach for technical editing, fact checking, and policy and stakeholder review.

Assignments in statute to PSP's Science Panel and Executive Director include development of three products that might fall under this section:
- Puget Sound Science Update (RCW 90.71.290)
- Biennial Science Work Plan (RCW 90.71.290)
- State of the Sound sections on comments from the Science Panel on progress in implementing the plan and findings from ecosystem monitoring and assessment (RCW 90.71.370(3))
- Reports on the identification and evaluation of ecosystem indicators.

However, as currently envisioned, none of these documents involves collection or novel analysis of data, so it is unlikely that a QAPP will be produced for these products.

PSP Science may undertake or commission investigations to address priority science activities in the Biennial Science Work Plan. Such projects may fall under this section and would likely require development and approval of a project plan (which may be equivalent to a QAPP). For example, PSP is undertaking a project to assess ecosystem pressures by eliciting expert judgments about ecosystem vulnerabilities and the strength of pressures.

4.1.3 Projects that do not involve data collection or analysis
A great amount of the work performed by PSP Science occurs in projects that do not involve the collection or analysis of data. For these projects, PSP science will adhere to the following quality assurance methods
- Following PSP's Guidelines for Scientific Review (Hamel and Currens, 2012), the PSP project manager will consult with the PSP Science Director to plan an appropriate scientific review for the product.

- The PSP project manager will coordinate with the PSP Science Director and the Science Panel (or their designee) as appropriate to support the scientific review and to ensure that a final product is developed that is responsive to the review.
- The PSP project manager will coordinate with the PSP Science Director, PSP's communications team, and other colleagues as appropriate to develop and follow an appropriate approach for technical editing, fact checking, and policy and stakeholder review.

Examples of PSP Science projects and activities that fit this category include:
- Documents describing PSP's Strategic Science Program (e.g., 2010 version of Strategic Science Plan).
- Reports from Puget Sound Ecosystem Monitoring Program (PSEMP) or its work groups on inventories of existing monitoring, priorities for monitoring, and monitoring gaps.

4.1.4. Projects that focus on public awareness, education, and outreach.
All public awareness, education, and outreach research shall comply with the *Code of Professional Ethics and Practices* and the *Best Practices for Survey Research* of the American Association for Public Opinion Research. This work is furthered governed by the principles identified in section 4.1.2 of this plan.

4.2 Planning and Performance Management
4.2.1 Report Card (Near Term Action [NTA] Tracking)
Report Card data consists of status and financial updated for Near Term Actions. This information comes from the NTA owners themselves – generally, they are state, federal, local agencies, Tribes, or non-profits. This information is fact-checked through performance measures and in-person reports to the Leadership Council. PSP accepts that, for the time being, this information is essentially unverifiable beyond those steps, and that we have to trust that our partners supply us with accurate information. We hope that this work can evolve to be more verifiable in the future.

4.2.2 Aligning State Budget Proposals with Action Agenda
This alignment follows a set of written rules that operates as a methodology. PSP assigned points to a proposal based on the strength of its association with the Action Agenda, the importance of the sub-strategy with which it is linked, and whether or not it is a strategic initiative, among other criteria. These criteria is documented and the point assignments can be re-created.

4.2.3 State of the Sound
The biennial State of the Sound report relies on data from other sources identified in this document: the Vital Signs, the Report Card, Near Term Action financial data, and the stewardship program. Quality assurance methods are documented under those items.

4.2.4 Action Agenda
The development of the Action Agenda is vetted through a comprehensive review process that involves the Puget Sound Leadership Council, the Ecosystem Coordination Board (ECB), the Science Panel, and a public involvement process. The information will be fact-checked by PSP staff and external reviewers. The document is essentially programmatic in nature, hence there is not a great deal of source data to review and verify. The document is primarily intended to provide policy direction and establish priority actions.

4.2.5 EPA National Estuary Program (NEPORT) report
The Partnership issues guidance and a template for data entry to its partners, and internal PSP staff, to explain the habitat project information that is required. For some of the larger projects PSP staff do qualitative research to check project information provided. To a large extent, PSP relies on its Partners to provide accurate information as per the guidance that they receive. The majority of the NEPORT habitat data is sourced from Washington Recreation and Conservation Office's PRISM database. PSP does not itself seek to verify this source data, instead leaving RCO to carry out its own database quality control measures. Once submitted to NEPORT the projects are then reviewed by EPA region 10. Once approved by EPA region 10, EPA HQ review and apply final approval. At any stage during EPA review projects can be returned to PSP for clarifications and/or additional information.

4.3 Financial Data
PSP collects financial information about each Action Agenda Near Term Action on an annual basis. PSP met in person with reporters, and issues detailed guidance on how to prepare the financial data. PSP staff carried out checks on each entry to find common mistakes, and instances where the guidance had not been followed. PSP asked NTA owners to state their methodologies clearly to make verification of the numbers easier; the data was then extracted and twice verified with state agencies. PSP's senior management, OFM, the ECB and the Leadership Council will all have a chance to review the financial information before it is published in the *State of the Sound* report.

PSP accepts that, for the time being, this information is essentially unverifiable beyond those steps, and that we have to trust that our partners supply us with accurate information. We hope that this work can evolve to be more verifiable in the future.

4.4 Contracting and Grant Processes
The Puget Sound Partnership's (PSP's) Finance Division is responsible for the contracting and purchasing processes of the agency. This includes developing performance-based scope of works; identifying vendor contracts versus federal sub awards; developing Request for Proposals for competitive contracts and awards; designating direct awards; and processing interagency agreements. The Grants, Contracts, and Compliance Manager (GCCM) oversees the internal contracting and purchasing processes of the agency to ensure compliance with state law (Chapter 43.19 RCW) and federal regulations regarding sub awards. The Washington State procurement & Contracting policies contained in Appendix F, and the Delegation of Authority (RCW 39.26.090) in Appendix G, address in more detail the guidelines that Puget Sound Partnership follows.

4.5 Geographic Information Systems
The Puget Sound Partnership (the Partnership) initiated a GIS program in early 2013 to address the growing need for and use of geospatial data and maps within the agency. The working document *Puget Sound Partnership GIS Program and Standards* (Appendix D) provides as an executive summary of the policies and procedures for the Partnership's GIS program to address the quality assurance, quality control, and other technical activities that the Partnership will implement to ensure our commitment to performance standards (EPA 2003). (Planned adoption in 2014) The Partnership will maintain this working detailed GIS Program documentation, as well as project specific documentation and, when necessary, QAPPS for more complex projects on the Partnership's website starting in early 2014.

4.6 Information Technology
Information Technology provides the technical support necessary for the dissemination of data and information in support of the agency's mission. Puget Sound Partnership adheres to security,

procurement, and standards set by the Washington State Office of the Chief Information Officer (OCIO), the Washington State Department of Enterprise Services (DES), and the agency's own internal policy. Key guiding documents and policies include:

- Washington State IT Security Standard No. 141.10: Securing Information Technology Assets http://ofm.wa.gov/ocio/policies/documents/141.10.pdf
- IT Security Plan for the Puget Sound Partnership (see Appendix E)
- DES provides oversight of agency purchasing authority and procedures. PSP follows DES's Procurement Policies http://des.wa.gov/about/pi/ProcurementReform/Pages/Policies.aspx.

Staff also meets regularly with OCIO and DES oversight consultants. Please see Washington State OCIO oversight policies and standards (Appendix E) for more information on the policies that govern Information Technology at PSP.

4.7 Records Management
PSP will ensure that all formats of the agency's records are managed for their entire lifecycle to achieve:

- Easy access
- Security
- Legal and regular disposition
- Reduced liability
- Documentation of past performance

All Puget Sound Partnership employees are custodians of Puget Sound Partnership records and must manage them according to state standards, regulations, and Puget Sound Partnership policy and procedure. This includes electronically stored information.

All employees must take Records Management training. When an employee leaves a job, the supervisor takes over managing the records until another employee assumes responsibility. All employees are responsible for keeping records organized and up to date, for segregating records exempt from public disclosure, and for assisting with producing records in the future.

PSP's records management guidelines are outlined in Policy A-500, *Agency Records Management and Retention (Appendix C).* As appropriate, projects generating new environmental data will be formatted for and submitted to Ecology for entry into the agency's EIM database.

4.8 Standard Operating Procedures
Currently, Puget Sound Partnership does not have any Standard Operating Procedures (SOPs). The Assistant Director will determine the need for SOPs, and set guidelines for how they will be prepared and maintained. For PSP, SOPs might not be limited to field or lab procedures, but might address contracting, fiscal, GIS, public outreach/survey activities, purchasing, etc.

Chapter 5: QAPPs and other Project Plans

PSP's QAPP policies will be detailed in the forthcoming *Puget Sound Partnership QAPP Guidelines* (intended for publication in 2014). In the interim, PSP will follow the guidelines and processes presented by the Washington State Department of Ecology for development of QAPPs for the National Estuary Program (NEP) presented online at:
http://www.ecy.wa.gov/programs/eap/qa/docs/nepqapp/index.html

As recommended in the NEP guidelines and processes, PSP will consult Ecology's Guidelines for Preparing QAPPs for Environmental Studies, which is available at:
http://www.ecy.wa.gov/biblio/0403030.html

For studies requiring project plans as discussed in section 4.1.2, PSP may follow the QAPP guidelines or may follow other relevant guidelines (e.g., EPA risk characterization handbook and information quality guidelines).

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view_Jan%2025%20FINAL.pdf

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for Environmental Studies. Washington State Department of Ecology, Olympia, WA.
Publication No. 04-03-030. https://fortress.wa.gov/ecy/publications/summarypages/0403030.html.

Washington State Department of Ecology for development of QAPPs for the National Estuary Program
(NEP) presented online at: http://www.ecy.wa.gov/programs/eap/qa/docs/nepqapp/index.html

Appendices

Appendix A: Puget Sound Partnership Policy 700-A Establishing Quality Assurance
Appendix B: Puget Sound Partnership Org Chart showing QMS roles & responsibilities
Appendix C: Records Management Policy
Appendix D: Puget Sound Partnership GIS Program and Standards [working document]
Appendix E: Washington State OCIO oversight policies and standards
Appendix F: Washington State Procurement & Contracting Policies
Appendix G: Delegation of Authority (RCW 39.26.090)

PugetSoundPartnership

LEADING PUGET SOUND RECOVERY

APPROVED:

_____
Marc Daily, Interim Executive Director

_____
8-13-13
DATE

PURPOSE

This policy establishes the Puget Sound Partnership's Quality Assurance (QA) Program. The QA Program will ensure that the data the agency uses in its decision-making processes will have known and documented quality and will be used appropriately.

This policy applies to all employees of the Puget Sound Partnership, and its contractors, who collect new data, analyze existing data, or conduct modeling related to the Puget Sound ecosystem and its recovery. This policy applies to data related to biophysical and social aspects of the ecosystem, performance, and management and policy issues.

DEFINITIONS

Quality Management System (QMS): The means by which an organization manages the quality of its primary business functions and products in a systematic and organized manner.

Quality Management Plan (QMP): A plan that is unique to an organization and describes the policies, management controls and technical processes necessary to plan, implement, document, and assess the effectiveness of its Quality Management System.

Quality Assurance (QA): The integrated program for assuring the reliability and quality of environmental or other types of data.

Quality Assurance Project Plan (QAPP): A plan that documents the planning, implementation, and assessment procedures for projects that include collection and analysis of environmental data, or environmental monitoring, or both, as well as any specific quality assurance and quality control activities.

Environmental data is data measuring:
- physical things (e.g., current, flow, changing locations of streams, water depths, grain size & sediment, streambeds)
- chemistry
- biological parameters

ESTABLISHMENT OF THE QMP

The agency's formal Quality Management System will be recorded in the agency's QMP. The QMP shall be consistent with US Environmental Protection Agency (EPA) and Washington State Department of Ecology (Ecology) guidance, and shall be updated every 5 years, or as needed.

GUIDELINES FOR SCIENTIFIC REVIEW

The scientific and technical works produced and disseminated by the Partnership vary in scope, scale, objectives, and influence. Consequently, scientific reviews at the Partnership go beyond the review of documents, technical reports, and scientific journal articles. Scientific reviews are not restricted solely to the penultimate version of products but can also occur during the development of products. The agency's expectations and standards for scientific review are recorded in "The Puget Sound Partnership's Guidelines for Scientific Review." (Approved by the Science Panel on January 25, 2012 or any subsequent revisions that are approved by the Science Panel.)

QUALITY ASSURANCE RESPONSIBILITIES

Puget Sound Partnership's Executive Director designates the agency's Quality Assurance Officer. The QA Officer provides direction and agency oversight of all quality assurance matters. Technical assistance on issues of quality assurance shall initially be provided by Ecology's National Estuary Program Quality Coordinator.

Program Directors of all Partnership programs (e.g., Science, Performance Management) must each designate a Quality Assurance Coordinator to provide QA support and oversight within their program.

The QMP shall describe the responsibilities of all QA staff in more detail.

QAPPs

A QAPP is prepared for each study or other activity that collects or analyzes environmental data. It will be prepared by agency staff or by project contractors, as appropriate. The QAPP shall meet all EPA requirements and/or follow Ecology guidelines as described in the QMP.

All work funded by EPA that involves the acquisition of new environmental data, analysis of existing environmental data, or modeling studies incorporating environmental data must have an approved QAPP. For projects funded by other sources, the project manager can develop a QAPP at the discretion of the QA Officer.

The QAPP lists the objectives of the study/activity; identifies the data needed to achieve those objectives; and describes the sampling, measurement, quality control, and data assessment procedures needed to obtain the data. The size and complexity of the QAPP will be proportionate to the magnitude, complexity, and potential implications of the study.

QAPPs shall be developed, reviewed, and approved as specified in the QMP, **before** data collection, data analysis, or modeling activity begins. QAPPs that involve field work or analysis of environmental samples shall comply with EPA's 2011 *Policy to Assure Competency of Laboratories, Field Sampling, and Other Organizations Generating Environmental Measurement Data under Agency-Funded Acquisitions.* QAPPs shall describe methods and procedures in sufficient detail such that repeating the activities and tasks would yield outcomes that meet the study's objectives for data quality.

PROJECT PLANS FOR OTHER TYPES OF DATA

Studies that involve other types of data (e.g., social aspects of the ecosystem, performance) do not fall under the QAPP if they do not involve the collection or analysis of environmental data. However, since these data still have significant impact on the decision-making process of the agency, the QA Officer has discretion to request that a project manager develop a Project Plan to address quality. As with the QAPP, the Project Plan lists the objectives of the study/activity; identifies the data needed to achieve those objectives; and describes the sampling, measurement, quality control, and data assessment procedures needed to obtain the data and develop appropriate results and conclusions. The size and complexity of the Project Plan will be proportionate to the magnitude, complexity, and potential implications of the study. Project Plans will be described in further detail in the QMP.
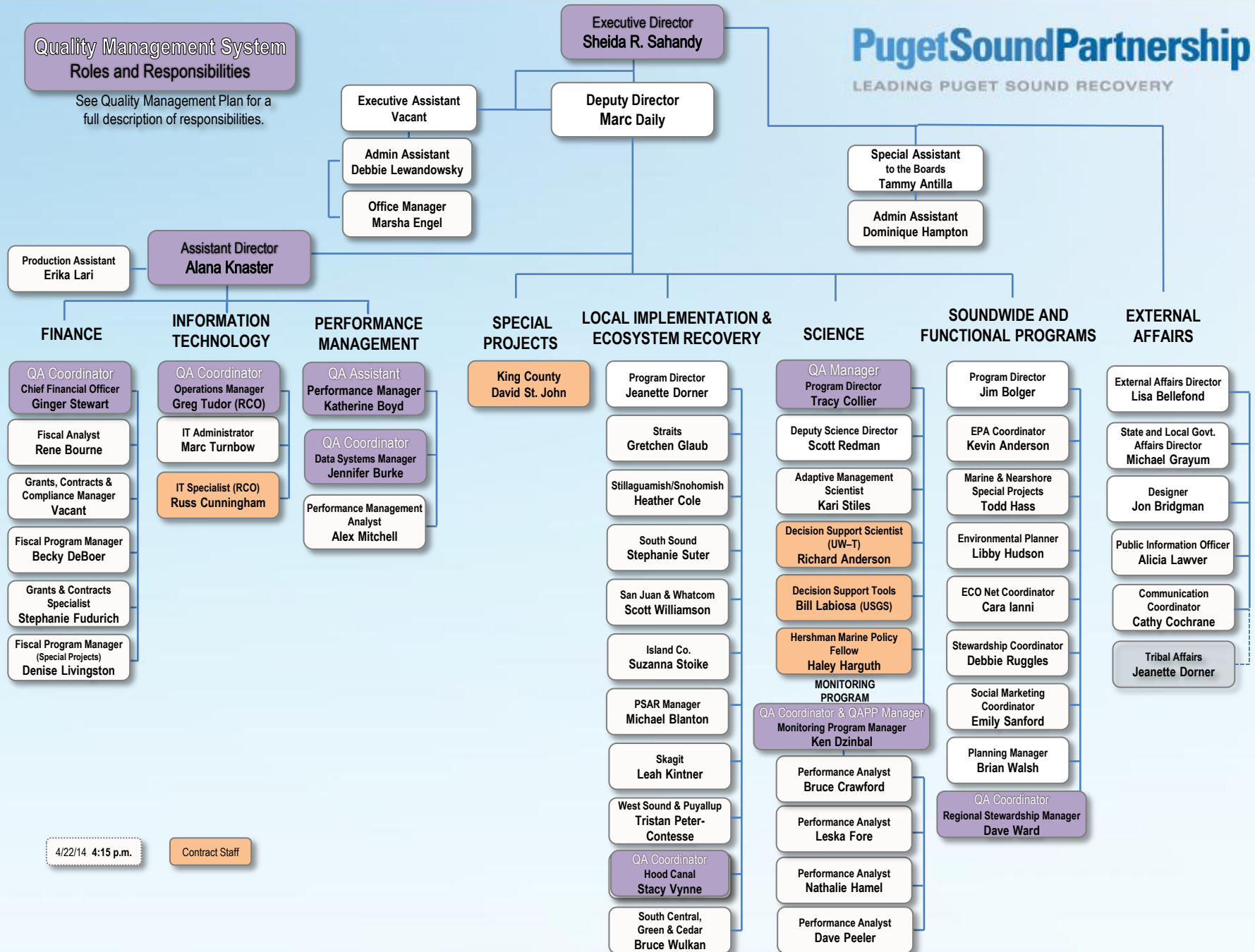
QUALITY ASSURANCE TRAINING FOR AGENCY STAFF

The QA Officer will coordinate quality assurance training for Partnership staff. Training details will be described within the QMP.

Quality Management System
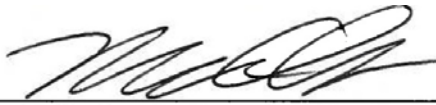## Roles and Responsibilities

See Quality Management Plan for a full description of responsibilities.

PugetSoundPartnership
LEADING PUGET SOUND RECOVERY

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Vacant

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4/22/14 4:15 p.m.

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PugetSoundPartnership
LEADING PUGET SOUND RECOVERY

Approved:

Marc Daily, Interim Executive Director

4-6-13
_____
DATE

Resources

Contact: Agency Records Officer

Managing Agency Records
References: RCW 40   WAC 434-610 through 626   WAC 434-640 through 677   State General Records Retention Schedules   State Essential Records Manual

Managing Agency Records

Purpose: To ensure all formats of Puget Sound Partnership's records are managed for their entire lifecycle to achieve:

- Easy access.
- Security.
- Legal and regular disposition.
- Reduced liability.
- Documentation of past performance.

Application: This policy applies to all Puget Sound Partnership employees and applicable contractors.

Definitions

A list of definitions used in this policy is provided on Page 4.

Executive Director Appoints an Agency Records Officer to Oversee Records Management

The Agency Records Officer is appointed by the Puget Sound Partnership Executive Director (or his/her designee) to develop and oversee a comprehensive records management program as outlined in RCW 40.14.040. This position supervises the agency records management process, and represents the agency in all contacts with the State Archives and the Records Center.

Supervisors Ensure Employees Manage Records According to Policies, Standards, and Regulations

All Puget Sound Partnership employees are custodians of Puget Sound Partnership records and must manage them according to state standards, regulations, and Puget Sound Partnership policy and procedure. This includes e**lectronically stored information**.

All employees must take Records Management training. When an employee leaves a job, the supervisor takes over managing the records until another employee assumes responsibility. All employees are responsible for keeping records organized and up to date, for segregating records exempt from public disclosure, and for assisting with producing records in the future.

All employees do their part to implement retention schedules and ensure that **active records** are kept, while transitory records are deleted and inactive records are "cycled" out of active office space to central "inactive records" storage through the Records Officer. Staff follows retention schedules, **file plans**, Essential Records Disaster Recovery Plans, and also participates in records inventories and plan updates each year, as needed.

Only One Person is Responsible to Keep Complete, Official Files

To reduce the number of copies kept in the agency, one person will be designated as the Records Management Coordinator responsible for maintaining the complete, official file for specific records. The Records Officer maintains the list of Records Management Coordinators for various records series.

Records Officer Sets Standards for Managing PSP Records and Manages Their Disposition

The Records Officer has the following responsibilities:

- Ensure Puget Sound Partnership complies with records management requirements.
- Develop policies, procedures, and guidance to help staff manage Puget Sound Partnership records in all media throughout their life cycle.
- Provide resources and training to Puget Sound Partnership staff to help them manage their program's records according to standards and requirements.
- Inventory and appraise Puget Sound Partnership records to ensure legal, fiscal, audit, risk, business and historical values are met, and review yearly.
- Manage Puget Sound Partnership's retention schedules, and review yearly.
- Develop File Plans and the Essential Records and Disaster Recovery Plan, and review yearly.
- Manage Puget Sound Partnership's records **disposition** and conversion to other media, as needed.
- Manage inactive paper records stored offsite at the State Records Center.
- Manage Puget Sound Partnership's inactive electronic records directories for transfer to the Digital Archives.
- Maintain Puget Sound Partnership's list of Records Management Coordinators.

Puget Sound Partnership Records are the Property of the State of Washington

Original Puget Sound Partnership records must stay in the agency's custody until they are archived or scheduled for disposal. The only exceptions are:

1. When original records are required by the courts.

2. When records are stored at the State Records Center or with the Department of Information Services.

3. When records are sent to the State Printer for duplication and will be returned to the agency.

When originals are required by a court, records will be duplicated so they can be available for Puget Sound Partnership business to continue.

Retention Schedules and File Plans Define Procedures to Manage Records Through the Records' Lifecycle

Retention schedules provide legal authority to archive or dispose of records. If a retention schedule doesn't exist, then the records must be kept until one is approved by the Agency Records Officer. **Retention schedules** are the primary guidance document for every type of record in any media. They are developed by the Agency Records Officer as a result of a records inventory and appraisal.

When the processes for managing some **record series** is a more complex process than a simple retention schedule can provide, a file plan may also be developed as a result of an inventory and appraisal. Plans are developed by the Agency Records Officer in collaboration with agency staff to more formally document the results of an inventory and appraisal and clarify processes to ensure consistency into the future.

Staff Use Puget Sound Partnership-Established Systems to Manage Records

When Puget Sound Partnership establishes systems—electronic or other—for managing certain records, employees must use these systems exclusively to ensure records are managed consistently across the agency.

New systems will be integrated with existing record-keeping systems (paper and electronic) to ensure successful migration and realize a return on investment without duplicating effort.

This document contains definitions of terms used in Policy A-500 and any related procedures and/or tasks.

Active Records – Records used frequently and stored "in office" according to the program's or office's retention schedule.

Disposition – Any manner or method of changing the custody, location, or physical state of records as designated by the retention schedule. It includes deletion, destruction, transfer to State Archives or another agency, or permanent conversion to another media, such as microfilming or electronic scanning.

Document – The original or any copy of any book, manual, pamphlet, periodical, letter, memorandum, e-mail, fax, telegram, report, record, study, handwritten-note, planner, calendar, diary, Post-It note, map, drawing, working paper, chart, paper, graph, index card, tape, data sheet or data-processing card, or any other written, audio or video recorded, transcribed, taped, filmed, photographed or graphic matter.

Electronically Stored Information (ESI) – Information created, manipulated, communicated, stored, and best utilized in digital form, requiring the use of computer hardware and software. It includes but is not limited to the following: data; word processing documents; spreadsheets; presentation documents; graphics; animations; images; e-mail and instant messages (including attachments); audio, video, and audiovisual recordings; voicemail. ESI may be found on any of the following locations: networks; computers and computer systems; servers; archives; backup or disaster recovery systems; discs, CDs, diskettes, drives, tapes, cartridges and other storage media; printers; the Internet; personal digital assistants; handheld wireless devices; cellular telephones; pagers; fax machines; and voicemail systems. This information could be on equipment both owned by Puget Sound Partnership *and* personally owned if used for business purposes.

File Plans – Management of some records series may be a more complex process than a simple retention schedule can provide, so a file plan may also be developed as a result of an inventory and appraisal. File plans clarify processes to ensure consistency into the future, describing how the records are created, which offices are responsible for managing them, records protection and disaster recovery measures, retentions schedules, and individual office procedures.

Record Series – Any group of related records that is filed and used as a unit and that permits evaluation as a unit for disposition purposes.

Records – Any information recorded in any way, regardless of physical form or characteristics, created or sent, organized or received by Puget Sound Partnership in the course of public business. This term includes documents and electronically stored information (ESI).

Records Management - The efficient, systematic control of records from their creation to their ultimate archival or disposal (the lifecycle of the records)

Retention Schedules – The instrument that provides legal authority to archive or dispose of public records. It designates when records become inactive (reach cut-off), identifies retention periods, and provides legal authority and instructions for how to archive or dispose of records at the end of their lifecycle. They are developed as part of the records inventory and appraisal process to ensure retention covers business needs, legal and fiscal requirements, historical values for the Archives of the State of Washington and protection of vital records for continuity of business.

Transitory Records – Records that have no legal, fiscal, audit, historical, or business value. All transitory records are covered by General Schedule 50001.

Puget Sound Partnership GIS Program and Standards
Puget Sound Partnership Quality Assurance Program Plan

January 2014

Executive Summary

The Puget Sound Partnership (PSP) initiated a GIS program in early 2013 to address the growing need to develop and manage geospatial data, analyses, and maps within the agency. This document is intended to detail PSP's GIS program and address the quality assurance, quality control, and other technical activities that PSP will implement to ensure our commitment to performance standards (EPA 2003). It is anticipated that PSP's GIS program will evolve and updates to this document are tracked in the Revision History section.

Content highlighted as demonstrated here was extracted from the EPA QAPP guidance document (2003) for clarification and guidance in reading this document.

Revision History

Date	Version	Description	Contact
4/15/2014	1.0	Submitted document	Jennifer Burke

Acronyms

AGOL	ArcGIS Online
DNR	Washington Department of Natural Resources
DNR	Department of Natural Resources
ECO Net	Education, Communication, and Outreach Network
ECY	Washington Department of Ecology
FGDC	Federal Geographic Data Committee
IT	Information Technology
LIOs	Local Implementing Organizations
NAIP	National Agricultural Inventory Program
NLCD	National Land Cover Database
NMAS	National Map Accuracy Standards
OCIO	Office of Chief Information Officer
PSNERP	Puget Sound Nearshore Ecosystem Restoration Project
QAPP	Quality Assurance Project Plan
RCO	Washington Recreation and Conservation Office
REST/SOAP	Representational State Transfer/Simple Object Access Protocol
SQL	Structured Query Language
USGS	United States Geologic Service
UTM	Universal Transverse Mercator
WAGIC	Washington State Geographic Information Council
WAPSP	Washington State Puget Sound Partnership
WRIA	Water Resource Inventory Area

Approval Page

_____

Greg Tudor, IT Manager   *Date*

_____

Alana Knaster, Deputy Director of Operations   *Date*

_____

Katherine Boyd, Performance Manager   *Date*

_____

Jennifer Burke, Performance Data Systems Manager   *Date*

Contents

List of Figures

List of Tables

1. Introduction

1.1. Purpose

The Puget Sound Partnership (PSP) initiated a GIS program in early 2013 to address the growing need for and use of geospatial data and maps within the agency. This document is intended to detail PSP's GIS program and address the quality assurance, quality control, and other technical activities that PSP will implement to ensure our commitment to performance standards (EPA 2003).

The following document provides both guidelines and source material for PSP's GIS program and standards:

1. Environmental Protection Agency. 2003. Guidance for Geospatial Data Quality Assurance Project Plans. Office of Environmental Information, Washington, DC 20460. EPA/240/R-03/003
2. Chesapeake Bay Program. 2007. Geospatial Data Quality Assurance Project Plan.

A majority of the GIS tasks performed by the GIS Manager/Analyst are routine and accomplished with minimal geoprocessing of geospatial data. These geoprocesses may include: projection, selection, clipping, minor editing of vertices, and overlaying of data. The purpose of these processes is to generate maps and update PSP's four authoritative datasets. All geoprocessing is conducted with the minimum threshold settings to reduce feature movement and review for consistency with the original dataset. This document is intended to document those general procedures and the standards implemented.

For more specialized tasks or analytical projects, the GIS Manager is responsible for documenting a separate specialized QAPP with details for quality control, assurance procedures, and the geospatial methods associated with all aspects of the project.

1.2. GIS Program Organization

The purpose of this element is to provide EPA and other involved parties with a clear understanding of the role that each party plays in the investigation or study and to provide the lines of authority and reporting for the project.

Puget Sound PSP GIS Program is part of the Performance Management Team and is comprised of a single GIS Manager who reports to the Performance Manager (Figure 1). The GIS Manager serves as PSP GIS analyst, specialist, cartographer, and administrator of all geospatial data and projects. The IT Manager administers the network, hardware, and software for PSP, including Washington State Recreation and Conservation Office's (RCO) ArcGIS Server that PSP uses to host services. The GIS Manager coordinates PSP's geospatial software and hardware needs with the IT Manager.

The GIS Manager is sustained at a 0.3 FTE and the tasks and responsibilities reflect the limited time available.
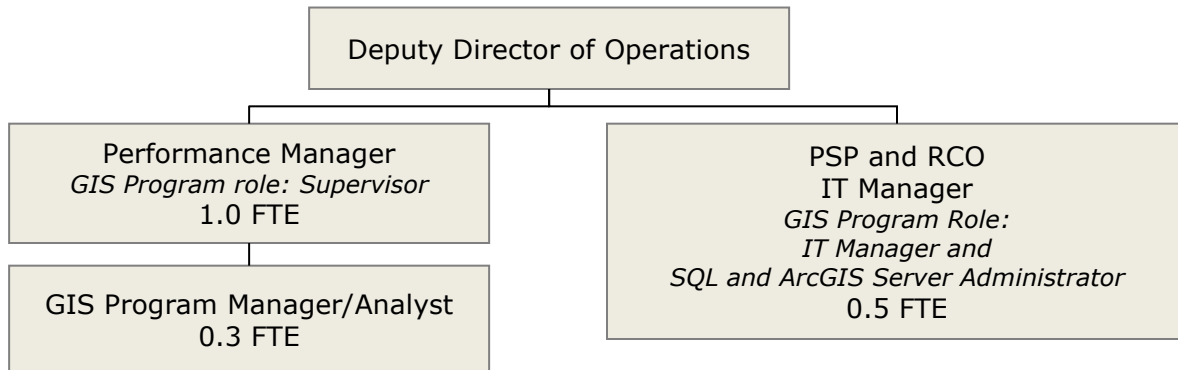
Figure 1. Organization structure of PSP's GIS program staff.

1.3. Problem Definition/Background

The purpose of this element is to describe the background and context driving the project and to identify and describe the problem to be solved or analyzed.

1.3.1. Goal

Provide GIS support to PSP staff and to external partners, and to provide effective and accurate geospatial data, analyses, and maps to the public.

1.3.2. Objectives

1. Support the suite of strategic goals and business needs of PSP.
2. Develop and maintain PSP's four authoritative geospatial datasets (see Section 1.4).
   - *Authoritative* datasets are datasets created and maintained by PSP for which only PSP has the authority to determine the geometry and attributes of those data, i.e. PSP is the authoritative source of these data.
3. Construct and maintain a current geospatial data library for cartography and spatial analyses.
4. Provide cartographic support for PSP's partners.
5. Provide cartographic support for presentations, publications, and meetings.
6. Develop and maintain geospatial data and maps on PSP's website.
7. Facilitate distribution of geospatial data and tools for the region.
   a. Data and tools may be developed by PSP's partners through EPA's National Estuary Program grants.

1.4. Projects and Tasks

The purpose of this element is to provide the participants with an understanding of the project tasks and the types of activities to be conducted.

PSP's GIS program will serve the needs of both PSP staff and its partners. PSP does *not* currently maintain an Enterprise GIS system because geospatial resources are not shared among staff. All tasks are solely the responsibility of the single GIS Manager at this time.

The GIS manager/analyst is expected to perform the following tasks:

A. Establish and maintain the Puget Sound PSP authoritative management boundaries with geospatial datasets for:
    a. Action Area boundaries and attributes.
    b. Salmon Recovery Watershed boundaries and attributes.
    c. Lead Implementation Organizations boundaries and attributes.
    d. ECO Net boundaries and attributes.
B. Develop and maintain:
    a. Presentation maps, both hard copy and digital.
    b. Outreach material.
    c. Publication maps.
    d. Embedded web maps.
    e. ArcGIS Online maps.
    f. Story maps.
    g. Standardized map templates for:
        i. State of the Sound
        ii. Action Agenda
        iii. Salmon Recovery Plans
C. Providing analytical and cartographic support for geospatial investigations, both internal and external.
    a. External projects must be applicable to moving PSP's Action Agenda forward.
D. Develop and maintain:
    a. Geospatial data on RCO's ArcGIS Server.
    b. Feature and map services stored on RCO's SQL and ArcGIS Server.
    c. Data download and service links on Washington State Geospatial Portal.
    d. Map, Story Maps, PDFs, and Applications on ArcGIS online (AGOL) system.
E. Manage PSP's AGOL account according to State OCIO GIS standards.
F. Manage geospatial data for PSP's Project Atlas <http://gismanager.rco.wa.gov/ProjectAtlas/>
G. Coordinate operations with the IT Manager and RCO and Puget Sound Institute
H. Participate in PSP's IT Governance committee

The GIS Program QAPP does not address specialized spatial analyses. These projects are documented in individual QAPPs associated with the project.

In addition to the tasks listed above, the GIS Program provides routine spatial data analyses primarily in support of cartography for PSP staff and partner organizations, e.g. Local Integrating Organizations (LIO), to support decision making associated directly with Near Term Actions. This task requires coordination and responding to the LIOs in a timely manner.

1.4.1. Schedule
All tasks as scheduled accordingly as the need arises with the exception of the Action Agenda, State of the Sound, and Salmon Recovery Plans. The Action Agenda and State of the Sound maps are updated on a biennial frequency. The Action Agenda is updated in spring 2014, spring 2016, etc. The State of the Sound report is updated in the fall of 2015, fall 2017, etc. The Salmon Recovery Plans are generated

annual in June. Maps are generated for all three publications at least 1 month prior to the rough draft submission for public review.

Figure 2 illustrates a partitioning of GIS program three main responsibilities according to the estimated time needed to fulfill the 0.3 FTE.
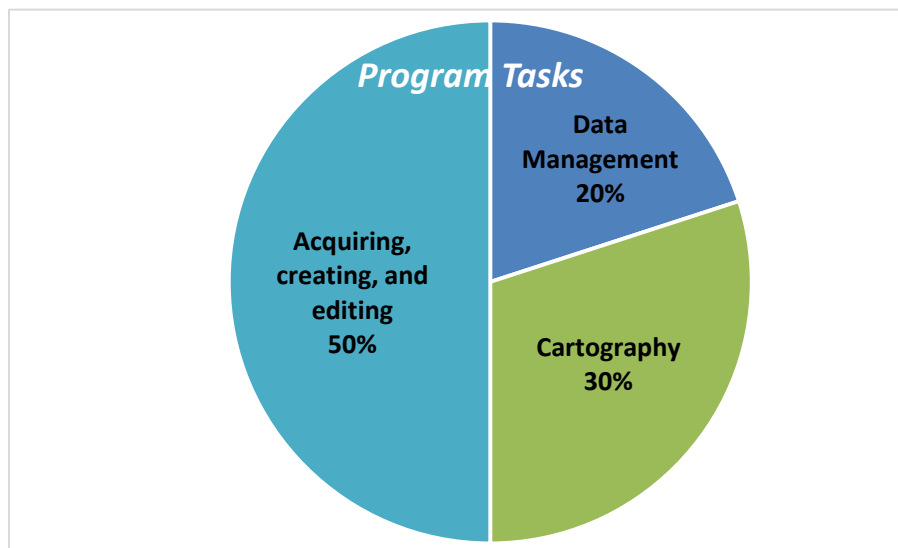
Figure 2. GIS tasks partitioned according to estimated time.

1.4.2. Coordination

The GIS Manager coordinates GIS activities with two sister agencies, and is expected to serve on a variety of committees within PSP and their sister agency, Washington State Recreation and Conservation Office (RCO).

1.4.2.1. RCO

PSP and RCO are both relatively small sister agencies that share staff and technology resources for efficiencies in cost and effort. PSP's IT Program is managed jointly with RCO by an IT Manager and team staff. PSP's GIS manager coordinates with PSP's IT Manager for matters that concern PSP's SQL and ArcGIS server, which is hosted by RCO at their facility. PSP defaults to RCO's data management standards for organizing and maintaining data on the RCO servers.

1.4.2.2. Puget Sound Institute

PSP and the Puget Sound Institute both use RCO's SQL and ArcGIS server to distribute data, and maintain feature and map services. To reduce redundancy of datasets on the server, PSP and PSI coordinate the contents of their respective GIS data libraries.

1.4.2.3. IT Governance

The GIS manager participates in two monthly meetings as a member of the IT Governance team at PSP and at RCO. Both committees oversee IT and GIS activities and are the key technology decision makers for both agencies.

1.5. Quality Objective and Criteria

The purpose of this element is to document the quality objectives of the project and to detail performance and acceptance criteria from the systematic planning process that will be employed in generating the data.

The objective of quality control and quality assessment are (NPS 2008):
1. Ensure that PSP projects and products are high-quality and credible data that can be confidently used by staff and the public.
2. Design, document, and implement standard quality control and assurance procedures that minimize or eliminate errors.

Quality control and assessment procedures pertain to the acquisition, creation, editing, and geoprocessing of geospatial data and the construction of maps for any purpose. Preferred source data includes federal and state agency authoritative datasets, e.g. National Hydrography Dataset, WA Department of Ecology Drift Cells geospatial data.

The Federal Geographic Data Committee has identified six components of data quality (FGDC 1998) that are applied to all geospatial data generated, manipulated, or acquired by PSP:
- Accuracy – positional
- Accuracy – attribute
- Completeness
- Logical consistency
- Precision
- Lineage

In addition to the six components above, all geospatial data generated and acquired are reviewed for:
- Best availability
- Appropriateness
  - Scale
  - Accuracy
  - Resolution
  - Time period
  - Format
  - Content
- Topology errors
  - Overlap
  - Gaps
  - Sliver polygons/segments
- Attribute errors
- Geometry errors
  - Empty geometry

Specific details related to the items above are addressed in Section 3.9 Quality Control and Assessment.

1.6. Training, Certification, and Professional Development

The purpose of this element is to document any specialized training necessary to complete the project. This element may be used to discuss how these needs will be met and how to verify that they have been met.

The GIS manager may obtain additional training and certification in the GIS field at the Performance Manager's discretion. Training is strongly encouraged on an annual cycle to maintain and develop the necessary skills for the program and to stay current with changing technologies. Certification supports agency credibility through establishing minimum standards and skills. Opportunities for both training and certification are available at:

- ESRI (www.esri.com)
    - o Virtual classroom
    - o Technical certification
    - o Workshops at conferences
    - o Local and International (San Diego) conference attendance
- GIS Certification Institute (www.GISCI.org)
- Online institutes of higher education

ESRI complimentary conference registration may be available at RCO's discretion for PSP's GIS staff to attend ESRI's annual international conference in San Diego.

1.6.1. Geospatial Skills

Table 1 lists the skills and software proficiency expected from PSP's GIS Manager.

Table 1. Skills expected of PSP's GIS Manager.

Skill	Skill Level
Software proficiency	
ArcGIS Advanced (ArcInfo) and extensions	Spatial Analyst, Geostatistical Analyst, Model Builder
ArcGIS Online	Feature services, map services, map applications, story maps
Python	Task efficiency
SQL server and queries	Familiarity with using
Microsoft Office Suite	Access, Excel (advanced features), Word, PowerPoint
Data Management	
Organization structure and maintenance	Best practices Hard drive folders, network, ArcGIS and SQL Server, AGOL
Geospatial formats	Vector and raster
File Geodatabases	Geodatabase structure, building and managing single user databases, converting data
Back-up and archiving data	
Horizontal coordinate systems and datums	Manage, Project (convert), Define
Vertical datums	Understanding
Dissemination	REST/SOAP services, data download, AGOL
Cartography	
Principles	Design, scale, resolution, coordinate systems
Map composition	Elements
Data Generation, Acquisition, Geoprocessing, and Analyses	
Project management	
Establish essential and robust workflows	
Quality control and assessment	Standardized methods, topology
Familiar with geographic coordinates	Geographic coordinate systems
Generate and edit geospatial data	Best practices Vector, Raster
Metadata	Create and edit using FGDC standards
Data acquisition	
Converting geospatial data formats	
Geoprocessing	Buffer, extract, overlay, generalization, summaries, feature conversion, project,
Analytical	Spatial Analyst, Geostatistical Analyst, pattern analyses, prioritization
Familiar with spatial data collection methods	GPS, remote sensing, aerial photography

1.7. Documents and Records

This element defines which documents and records are critical to the project. It provides guidance to ensure that important documentation is collected, maintained, and managed so that others can properly evaluate project procedures and methods.

The following documents or documentation are developed and maintained by PSP:

1. PSP GIS Program Standards
2. Metadata for all PSP authoritative datasets
3. Existing documentation for secondary data sources if data are distributed by PSP

1.7.1. PSP GIS Standards

This document is available on the shared drive on PSP network in the GIS folder. This document is also available for viewing and download as a PDF on PSP website on the GIS webpage. Both versions will be updated concurrently as needed.

1.7.2. Metadata

The State of Washington adopted the Federal Geographic Data Committee (FGDC) FGDC-STD-001-1998 *Content Standard for Digital Geospatial Metadata* as the standard to follow when documenting geospatial data sets (OCIO TSB 2012). To facilitate the implementation of this standard the Washington State Geographic Information Council (WAGIC) provides a working metadata standard, a subset of the FGDC Content Standard for Digital Geospatial Metadata, the approved pathway toward the adoption of the FGDC Content (OCIO TSB 2012).

1.7.2.1. Authoritative data

All authoritative datasets generated by PSP will comply with the Washington State GIS program standards. The working metadata standard is available at
http://ofm.wa.gov/ocio/policies/documents/161.11.pdf.
In addition to dataset metadata, all PSP authoritative elements published on ArcGIS Online requires summary metadata as detailed by the Washington State OCIO GIS program office. The standards are currently in draft form and provided upon request by the Washington State OCIO program office.

1.7.2.2. Secondary Data

Data obtained from secondary sources will have existing metadata that will not be altered and will be maintained in the GIS library with the original source data.

1.7.2.3. Operational Data

A majority of the operational datasets will not have updated metadata due to the temporary nature of the data, interim purpose, or the secondary source for a majority of these data. Examples include the creation of new datasets for maps such as the selection of Puget Source WRIA polygons from the statewide ECY WRIA dataset or extraction of NLCD land use land cover for Skagit County. Both newly created datasets in the example have existing metadata from the authoritative source agency, are not distributed by PSP, and are processed only for cartographic effects required to develop the map.

In lieu of fully compliant FGDC metadata, the GIS manager may edit the Summary section of the dataset's metadata or generate a memo or a report to detail how the data were geoprocessed and the purpose of creating the data for future reference. In addition, standardized naming conventions of operational data provides additional metadata for the GIS Manager, e.g. retain the original data source name and add "_sel_PS", which refers to the sub-selection of Puget Sound features from the larger source dataset. Non-embedded metadata and memos are stored with the dataset in a folder.

1.7.2.4. AGOL Metadata

The Washington State OCIO GIS Program provides guidance on metadata requirements for data, services, maps, and PDFs on the WA State AGOL Portal. PSP will provide all metadata required. Metadata is limited by Esri to the following elements:
- Title

- Description
- Service URL (auto-generated)
- Originator
- Resource Type (auto-generated)
- Publication Date (auto-generated by Esri)
- Theme Topic (ISO Categories 11975)
- Projection
- Bounding Coordinates

1.7.2.5. Metadata Keywords and Tags

PSP products will include the appropriate metadata keywords and tags prior to publishing online or distribution. The tags will be selected from a list created by PSP to standardize the naming conventions. The list is currently under development as products are still being identified. At a minimum, all maps, datasets, and distributed items will include the following metadata tags/keywords:

- Puget Sound Partnership
- PSP
- Washington
- WA
- Applicable ISO 19115 Topic Categories as required by the Washington State OCIO GIS program
    - List available at
      http://geography.wa.gov/GeospatialPortal/iso_19115_metadata_topic_categories.pdf
- Name of the dataset, such as Action Areas.
- Subject of the data, such as Salmon.

2. Data Generation and Acquisition

Geospatial projects may involve the creation of new geospatial data from field measurements (e.g., from GPS measurement, aerial photography, or satellite imagery) or may involve the acquisition and use of existing geospatial data originally created for some other use.

PSP does not collect field measurements for spatial data generation. The GIS program is primarily responsible for maintaining PSP's four authoritative datasets, providing cartographic and spatial analytical products to staff and PSP outreach publications, presentations, and websites, and supporting PSP's partners if GIS resources are not available to them. This requires the development and maintenance of PSP's authoritative data, and the acquisition and geoprocessing of secondary data. Secondary use of data is the use of environmental data collected for other purposes or from other sources (EPA 2007).

2.1. Data Generation

This section will address data generation of the authoritative datasets that are not already discussed in the Quality Control sections (1.5 Quality Objective and Criteria and 3.9 Quality Control and Assessment).

PSP establishes and maintains four authoritative boundary (polygon) datasets:
1. Action Areas.
2. Salmon Recovery Watershed boundaries.
3. Lead Implementation Organizations boundaries.

4. ECO Net boundaries.

To maintain consistent edge-matching for boundaries and spatial analyses of the authoritative PSP datasets, the boundary lines will, where applicable, default to PSP's Action Areas, WA Department of Ecology WRIA boundaries, WA Department of Natural Resource's ShoreZone, or another agency or organization's authoritative dataset if applicable.

In addition to the spatial data mentioned previously, PSP generates the following types of data for our partners as a service in relation to the management of PSP's Near Term Actions and tracking of Puget Sound recovery actions. Examples include:

1. Point locations of recovery projects derived from latitude and longitude coordinates provided by partners.
2. Polygon or polylines of recovery projects derived from annotated maps or provided by the partners.

These data are not distributed, do not serve as authoritative datasets, and are not intended for general public use. Dissemination of the data is at the discretion of our partners who own the data. The accuracy of the geospatial data is the responsibility of the source providing the coordinates. PSP reviews the geospatial data for location integrity in the general vicinity, but PSP does not assess the accuracy of the point, polyline, or polygons provided by partners when PSP is providing GIS support to them.

In the event that PSP develops and distributes latitude and longitude coordinates for public use or mapping, PSP will follow the FGDC Geospatial Positioning Accuracy Standards, Part 1 and 3 (1998).

2.1.1. Action Agenda and Salmon Recovery Plans

PSP produces a biennial Action Agenda and the Salmon Recovery Watersheds generated annual Salmon Recovery Plans. PSP's GIS Manager develops maps for both publications. No new data are acquired but PSP's authoritative dataset are used in these maps.

2.2. Data Acquisition

Quality assurance includes not only the collection of new data, but also an evaluation of any existing data used. The secondary use of existing data (or "nondirect measurements") is an important component of many geospatial data projects. These data can be evaluated to determine that they are of adequate quality for the project's needs. This element documents the sources of data and the criteria used to evaluate the quality of this data.

PSP will adhere to WAGIC state standards for geospatial data acquisition recommendations, which currently directs state agencies to use the National Hydrologic Dataset for hydrography data. No further recommendations are provided.

A majority of PSP's GIS projects will use authoritative spatial data from partner agencies, termed secondary data. While PSP will assume that the partner agency has diligently upheld State standards for data quality, the GIS Manager will review the data according to the six FGDC components of data quality (FGDC 1998). PSP will acquire and manage these data according to the specifications of this document.

The following datasets are the preferred or state standard for mapping and spatial analyses and are maintained in PSP's GIS library:

1. WA Department of Natural Resources (DNR) Counties
2. WA DNR State boundary
3. National Hydrography Dataset (State Standard) (available as a feature service)
4. National Elevation Data
5. WA Department of Ecology (ECY) WRIA boundary data set
6. DNR ShoreZone shoreline
7. Esri basemaps (map services)
8. USGS Topographic maps (map service)
9. NAIP aerial imagery (map service)
10. National Land Cover Database (NLCD)
11. Latitude and longitude coordinates for point projects
12. Puget Sound Nearshore Ecosystem Restoration Project (PSNERP) geodatabases

The follow criteria are applied to acquired data:
1. Geodatabase, Imagine, or Mr.Sid format
    a. If data are distributed as shapefiles, the data are converted to a geodatabase format and reviewed with the original.
2. Distributed by the source of the data
    a. Tertiary sources are discourages except in the case of the National Hydrography Dataset Plus
3. Most current available or most appropriate for the project
4. Latitude and longitude coordinates are provided as:
    a. An Excel spreadsheet
    b. 5 digit precision, if appropriate.
    c. Decimal degrees format.
5. Reviewed with comparative datasets, such as aerial imagery, for consistency and accuracy.

The National Hydrography Dataset and the WA Department of Ecology WRIA boundary dataset serve as the primary source material for PSP's authoritative datasets. Other secondary datasets serve as reference material to validate feature locations and may be geoprocessed for cartographic and analytic purposes.

2.2.1. State of the Sound

Spatial data collection for State of the Sound updates is coordinated by the PSP Vital Signs manager and PSP's partner agencies that serve as the Vital Sign/Indicator leads. Data are provided to the GIS Manager and used for cartography in the condition it is delivered. PSP does not own or distribute these data.

3. Data Management

This element presents an overview of the operations, calculations, transformations, or analyses performed on geospatial data or their attributes throughout the project.

This section describes the geospatial data life cycle phases, consisting of (1) design and planning for the program, (2) collection and acquisition, (3) processing and documentation, (4) storage and access, and (5) maintenance and retirement (CBP 2007).

3.1. Program Management Activities

PSP's GIS Program has several key activities that it is responsible for:

1. Creating, updating, maintaining, and disseminating PSP's four authoritative datasets
2. Providing summary data and analytical data for staff and partners
3. Generating maps for staff and partners

These tasks are accomplished successfully through sufficient technical infrastructure, a standardized methodology for managing and processing data, and effective quality control and assessment methods.

3.2. Technical Infrastructure

3.2.1. Software

PSP's geospatial technical infrastructure consists of:

1. One ArcGIS Advanced 10.1 user license for the GIS Manager.
2. A shared network drive for data back-up.
3. A shared ArcGIS Server 10.1 hosted at a partner agency's server, RCO, for storing and distributing data, maps, and services.
4. ArcGIS Viewer for Flex on PSP's web server (in the process of obtaining).
5. A Washington State agency organization account with ArcGIS Online (AGOL) for creating and sharing data, PDFs, applications, and interactive web maps.

Desktop software installation and updates, laptop hardware, and local data back-up maintenance are the responsibility of the GIS Manager. Server back-ups and server software are maintained by the IT Management Team.

3.2.2. Storage and Back-up

Data back-up is performed on a daily basis both on-site from the GIS Manager's laptop to PSP's shared drive, and automatically from the shared drive to an offsite location. System security and network back-up is maintained by the IT Management Team according to State standards and policies.

3.2.3. Financial Plan

The financial plan for the GIS Program's resources is maintained by the IT Manager, as part of PSP's software and hardware IT program needs.

3.3. Geospatial Data Types and Formats

3.3.1. Data Types

PSP acquires and maintains four types of data (Table 2).
Table 2. Data types generated or managed by PSP.

Dataset	Source	Purpose	Publicly Distributed	Update Frequency by PSP	Lifespan
Authoritative	Created and maintained by PSP	PSP Business	Yes	As needed	Indefinite
Operational	Geoprocessed data	Cartography	No, limited audience	Frequent	Very short, depends on purpose
Analytical	Geospatial analyses, simple or complex	Reporting and Cartography	Potentially	None *unless partner's authoritative data is updated*	Long
Basemap as a service	State or Federal agencies	Cartography	No	None	Indefinite

PSP's four *authoritative* datasets are limited to the boundary lines/polygons for PSP's:
1. Action Areas.
2. Salmon Recovery Watershed Chapters.
3. ECO Nets.
4. Local Implementing Organizations.

3.3.2. Dataset Format - Local
The standard formats of all data managed by PSP are:
- file geodatabase for all vector data.
  - Feature datasets for collections of features, e.g. Hydro_streams, Hydro_watersheds.
- file geodatabase or .img for raster data.
- .csv or .dbf for tabular data.
- PDF or PNG for map documents.

3.4. Coordinate System
PSP adheres to the standards set forth by WA RCW 58.20
<http://apps.leg.wa.gov/rcw/default.aspx?cite=58.20> to use Washington State Plane coordinate system and a horizontal datum of NAD 83 HARN. The exceptions are when another coordinate system may benefit the user, e.g. cartography, spatial analyses, and web maps, and provide improved visual display and accuracy of products (Table 3).
Feature services and map services are distributed to the public for online consumption in ArcGIS Online and ArcMap Desktop. Because the established projection for ArcGIS Online is Web Mercator Auxiliary Sphere, PSPs feature and map services are distributed in Web Mercator Auxiliary Sphere (Table 3).

Datasets provided as layer packages for download through AGOL and the WA State Geospatial Portal are in the State standard coordinate system.

Table 3. PSP's coordinate and projection standards

Coordinate System	Washington State Plane (*see details below*)

Projection System	Lambert Conformal Conic
Coordinate Zone	South (*Sound-wide*), North (*as appropriate*)
Coordinate Units	U.S. Survey Foot
Horizontal Datum	NAD 83 HARN
Vertical Datum	NAVD 88
Vector Format	File Geodatabase feature class, Shapefile for distribution
Raster Format	File Geodatabase raster, TIFF, PNG, ESRI Grid
Web Service Coordinate System	Web Mercator Auxiliary Sphere
Web Service Horizontal Datum	WGS 84
Web Service Projection System	Mercator Auxiliary Sphere
Web Service Linear Units	Meters

3.4.1. Washington State Plane South Specifications

Washington State Plane South

NAD_1983_HARN_StatePlane_Washington_South_FIPS_4602_Feet
Authority: Custom
Projection: Lambert_Conformal_Conic
False_Easting: 1640416.666666667
False_Northing: 0.0
Central_Meridian: -120.5
Standard_Parallel_1: 45.83333333333334
Standard_Parallel_2: 47.33333333333334
Latitude_Of_Origin: 45.33333333333334
Linear Unit: Foot_US (0.3048006096012192)

Geographic Coordinate System: GCS_North_American_1983_HARN
Angular Unit: Degree (0.0174532925199433)
Prime Meridian: Greenwich (0.0)
Datum: D_North_American_1983_HARN
Spheroid: GRS_1980
Semimajor Axis: 6378137.0
Semiminor Axis: 6356752.314140356
Inverse Flattening: 298.257222101

3.4.2. Washington State Plane North Specifications

NAD_1983_HARN_StatePlane_Washington_North_FIPS_4601_Feet
WKID: 2926 Authority: EPSG
Projection: Lambert_Conformal_Conic
False_Easting: 1640416.666666667
False_Northing: 0.0
Central_Meridian: -120.8333333333333
Standard_Parallel_1: 47.5
Standard_Parallel_2: 48.73333333333333
Latitude_Of_Origin: 47.0
Linear Unit: Foot_US (0.3048006096012192)

Geographic Coordinate System: GCS_North_American_1983_HARN
Angular Unit: Degree (0.0174532925199433)
Prime Meridian: Greenwich (0.0)
Datum: D_North_American_1983_HARN
Spheroid: GRS_1980
Semimajor Axis: 6378137.0
Semiminor Axis: 6356752.314140356
Inverse Flattening: 298.257222101

3.4.3. Web Mercator Auxiliary Sphere Specifications

WGS_1984_Web_Mercator_Auxiliary_Sphere
WKID: 3857 Authority: EPSG
Projection: Mercator_Auxiliary_Sphere
False_Easting: 0.0
False_Northing: 0.0
Central_Meridian: 0.0
Standard_Parallel_1: 0.0
Auxiliary_Sphere_Type: 0.0
Linear Unit: Meter (1.0)

Geographic Coordinate System: GCS_WGS_1984
Angular Unit: Degree (0.0174532925199433)
Prime Meridian: Greenwich (0.0)
Datum: D_WGS_1984
Spheroid: WGS_1984
Semimajor Axis: 6378137.0
Semiminor Axis: 6356752.314245179
Inverse Flattening: 298.257223563

3.4.4. Transformations

The most current and appropriate transformation are used when projecting data from one datum to another datum. Table 4 lists the most current transformation to use for data within the State of Washington.

Table 4. Transformations to use as of November 2013.

Datum Transformation	Transformation to use
NAD 83 to NAD 83 HARN	NAD_1983_To_HARN_WA_OR
NAD 27 to NAD 83 HARN	NAD_1927_To_NAD_1983_NADCON
NAD 83 HARN to WGS 84	NAD_1983_HARN_To_WGS_1984_3
NAD 83 to WGS 84	NAD_1983_To_WGS_1984_5

3.5. Storage Structure and Procedures

3.5.1. Local Storage and Structure

Due to the processing power needs, the size of the spatial datasets, and the single-user GIS environment at PSP, all PSP GIS Program data are maintained on the GIS Manager's laptop in a standardized folder structure (Table 5). The GIS Program data are managed such that secondary data are maintained unaltered as downloaded in a z_SourceData folder, with the datasets organized by topic subfolders. The z_SourceData folder is primarily read-only and serves as the main reference and back-up of the source datasets. Prior to any geoprocessing or editing, datasets are copied from the z_SourceData to the SpatialData working folders which are organized by topic (Table 6).

Table 5. Folder structure and brief description for the GIS Program

Folder Name	Description
Applications	Esri mapping applications
Documentation	Reference materials, How To's, Esri ArcGIS license, etc.
MapDocs	Export files of maps (.png, .tif)
Metadata	Export files of metadata and templates
mxds	ArcGIS map files; organized by purpose
SpatialData	Spatial data library
Standards	GIS program standards and guidance documents
Tables	Tables generated from geoprocessing (INFO files, .csv, .dbf)
Thumbnails	AGOL standardized and custom thumbnails
Tools	Custom toolboxes and geoprocessing tools
Training	Training materials and certifications

Table 6. Topic folders used to organized PSP spatial data library.

Folder Name	
Authoritative_PSP	ProjectAtlas
Boundaries _Admin	ProtectedAreas
Boundaries_CoordSys	PSNERP
Elevation	Shoreline
Hydrography	SpecialMapsData
Infrastructure	Species
LandCover	Stewardship
Mixed_NetMap	Vital Signs
Mixed_PSNERP	Z_SourceData

Topic categories are used to organize the spatial data downloads and operational data. The International Organization for Standards (ISO) metadata standard (ISO 19115) is the basis for the topic categories with a few additions and the exception of mixed category datasets, such as the PSNERP data stored in the Mixed_PSNERP folder. PSP's authoritative data are managed in the Authoritative_PSP folder. The purpose of the standardized topic categories is to facilitate easy data discovery within the library for projects and cartography.

3.5.1.1. Naming Conventions

Non-secondary geodatabases, tables, map files (.mxd), map documents (.png) are named according to the subject of the data. Geodatabase feature datasets also include the coordinate system if the data are not projected in the state standard. Naming conventions do not apply to the original data download from secondary sources located in the z_SourceData folder; the original data names are retained for the original data. Operational data based on secondary data names may be modified once they are processed and relocated to PSP's GIS data library.

3.5.2. Network Storage and Structure

The GIS program laptop is backed-up daily to PSP's shared file server with a folder structure defined by the local structure.

3.5.3. ArcGIS Server Structure

PSP's SDE datasets and published feature and map services reside on RCO's ArcGIS and SQL servers (Table 7). Access to the RCO server as a user or publisher are provided by the IT manager. Server data are backed-up and managed by RCO.

Table 7. Server connections and URLs.

Connection address/URL	Purpose
dev.prism_gis_v.psp.sde	Development SQL server for feature classes *Primarily for operational datasets*
prod.prism_giv_v.psp.sde	Production SQL server for feature classes *Location of PSP's authoritative datasets*
gismanagerweb.rco.wa.gov	Development ArcGIS server for services *Primarily for operational services*
gismanager.rco.wa.gov	Production ArcGIS server for services *Location for authoritative services*

PSP uses the following folder organization as established by the IT Manager for feature classes and services:
- SDE datasets reside at the root level of the server as feature classes
- Feature and map services reside in a folder named **PSP** at the root level

ArcGIS services are created using the following steps:
1. One or more feature classes are migrated to the RCO SQL Server to create an .sde file with the standard naming convention
2. An ArcGIS map file (.mxd) is generated locally using the .sde file
3. The ArcGIS map file is then shared as a published service to the RCO ArcGIS server.

All ArcGIS map files that support a service are stored locally in a *MapServices* folder within the *mxd* folder at the root level of the GIS program folders. Map files are organized by a naming convention that indicates if the data are authoritative, *A_maps*, or operational (temporary), *O_maps*.

Feature classes and services published to the RCO servers abide by the Washington State OCIO GIS program standards for metadata, keywords, thumbnails, and naming conventions. Standards are available upon request from the OCIO GIS Manager.

3.5.3.1. Naming Conventions
In keeping with the State standards, PSP's naming conventions for feature and map services are:
- Authoritative feature class on the SQL server:
    - **prism_gis_v.psp.***XXX_xxxxx*_sp, where
        - XXX = PSP
        - xxxxxx is a unique but informative name for the dataset, no character limit
        - *"_sp" is present only if the projection is State Plane South NAD 83 HARN for layer packages and data download link on the State Geospatial Portal GIS Data Catalog (http://geography.wa.gov/GeospatialPortal/dataDownload.shtml).*
- Authoritative feature and map services (REST and SOAP) on the ArcGIS Server:
    - *XXXXX_xxxxxx*, where
        - X = WAPSP
        - xxxxxx is a unique but informative name for the dataset, no character limit
- Operational feature and map services (REST and SOAP) use the following naming convention:
    - O_xxxxxxx
        - Where O denotes the operational (temporary) nature of the data
        - xxxxxx is a unique but informative name for the dataset, no character limit

3.5.4. ArcGIS Online Structure and Procedures
PSP's GIS manager is a member of the Washington State ArcGIS Online Organization. The AGOL account holdings are managed by PSP's GIS manager, and PSP's AGOL account is managed by the Washington State OCIO GIS Program. The online portal provides an organizational license for providing data, services, PDFs, and map applications in a central place for all state agencies. These data may be private for internal use or public. There are a variety of groups at the Washington State ArcGIS Online Portal to organize and elevate the visibility of the resources published by the agencies. Use of these groups are detailed in a document provided by the Washington State OCIO GIS Program Manager. All PSP services are provided in the Esri web map coordinate system of WGS84 Web Mercator, Auxiliary Sphere.

PSP uses the WA State AGOL portal to:
1. Publish REST/SOAP map services for the four authoritative datasets.
    a. These services are a member of the WA Portal Services group.
    b. All services are provided in the web map coordinate system (WGS 84 Web Mercator, Auxiliary Sphere).
2. Publish REST/SOAP map services for operation datasets used in mapping applications
    a. These services are *not* a member of WA groups.
    b. All services are provided in the web map coordinate system (WGS 84 Web Mercator, Auxiliary Sphere).
3. Create and publish web maps and mapping applications.
    a. These services may be a member of the WA Portal Maps & Apps group if applicable.
4. Create and share layer package of authoritative data for public download.

5. Create and publish non-geographic PDFs of maps for public download.

Data and services are organized in a single-layer folder structure, i.e. subfolders are not permitted (Table 8).

Table 8. AGOL organization folder structure.

Folder	Description
A_DataServices	REST/SOAP Feature Services for authoritative datasets
A_LayerPackages	Layer packages for authoritative datasets download
A_MapServices	REST/SOAP Map Services for authoritative datasets
A_WebMaps	Maps and mapping applications for authoritative datasets
LIOs	Operational resources for PSP's LIOs
O_DataServices	REST/SOAP Feature Services for operational datasets
O_MapServices	REST/SOAP Map Services for operational datasets
O_WebMaps	Maps and mapping applications for operational datasets
PDFs	PDF files of maps
Thumbnails	Thumbnail images for AGOL metadata
VitalSigns	Vital Sign feature services and maps embedded in PSP website

The portal access is provided through an invitation from the Washington State OICO GIS Program manager using the GIS Manager's email address. All online resources are linked to this account and this account cannot be deleted, in the event that the individual separates from PSP, until all resources are relocated or deleted from the system. When there is a change in GIS Manager staff, the resource ownership will be transferred to the replacement GIS Manager.

3.6. Processing Data

3.6.1. Overall Standards

Spatial datasets are often manipulated for cartographic and analytical purposes through geoprocessing and data management processes. The output is typically multiple intermittent and final geospatial datasets that may be similar to the original or completely different. The following standards are applied for all geoprocessing tools.

☐ If a new vector or raster dataset is generated, the new dataset is tested for positional consistency with original dataset when applicable.

☐ All analyses are completed (input and output) in the file geodatabase environment for both vector and raster datasets.

☐ The use of shapefiles is strongly discouraged.

☐ Source data that originates from a shapefile is converted to a file geodatabase feature class, reviewed for positional accuracy in ArcMap with basemaps, and topology is validated for inappropriate overlaps and gaps (polygons).

☐ Geoprocessing of data should be limited and repeated procedures should be initiated on copies of the original source dataset.

The general steps for processing geospatial data are illustrated in Figure 3 and Figure 4.

3.6.2. Generating Authoritative Datasets

PSP creates and maintains four authoritative datasets as part of PSPs business needs. These data are constructed from existing data using the steps Figure 3.
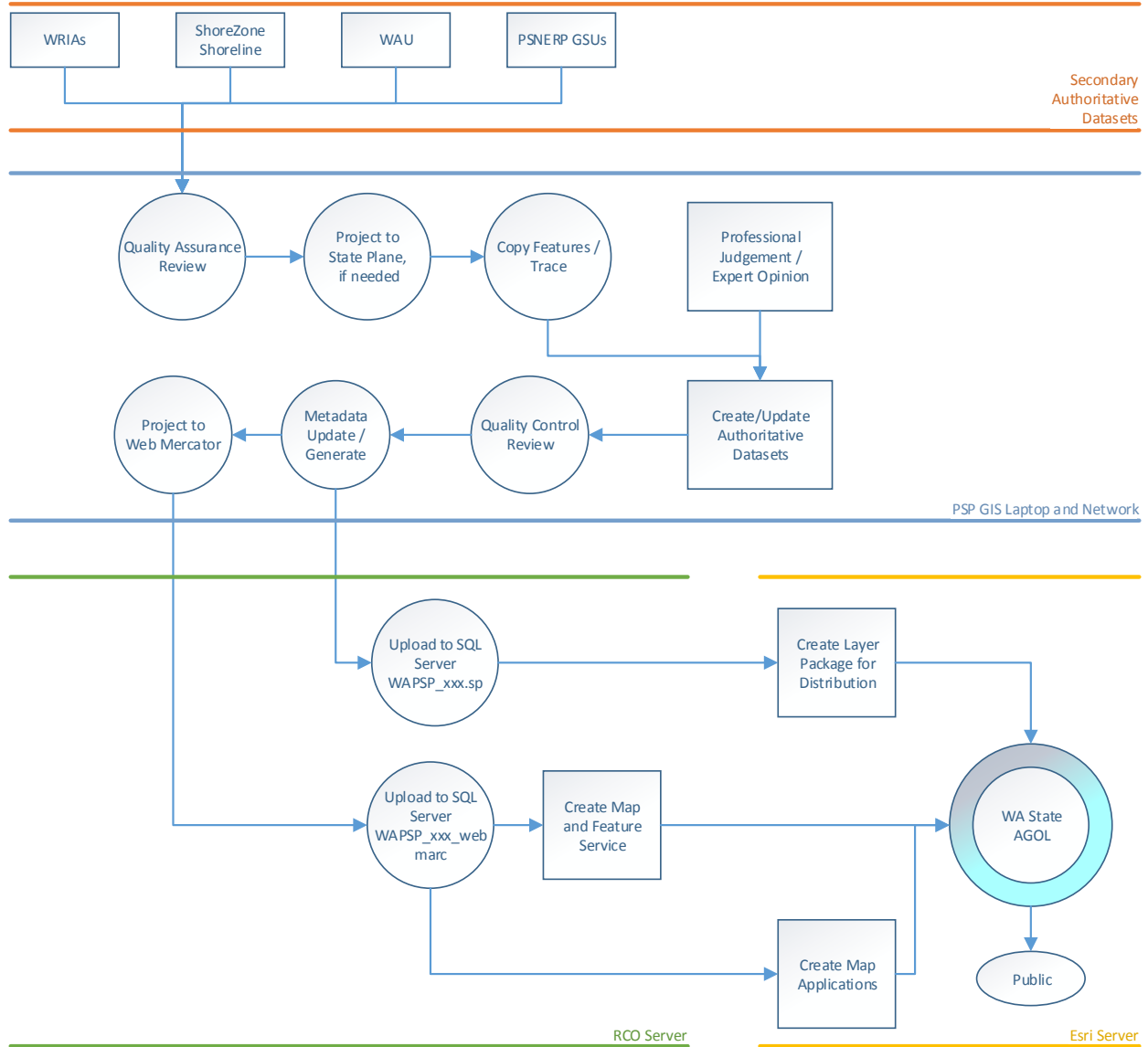
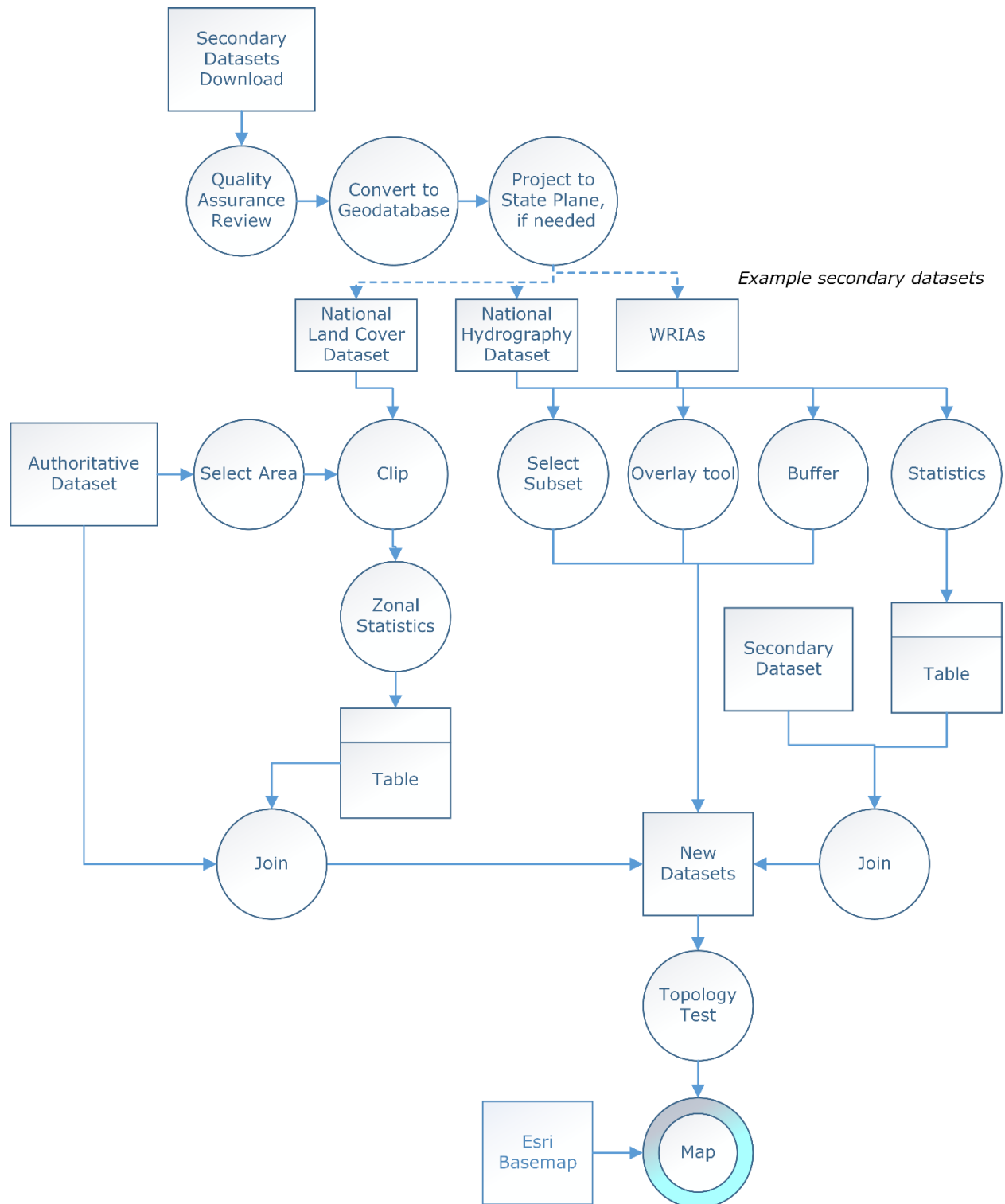Figure 3. Geoprocessing, quality control, and dissemination steps for PSP's authoritative datasets.

Figure 4.Example steps for geoprocessing authoritative and secondary datasets to developing a map.

3.6.3. Spatial Analyses Standards

PSP may conduct simple spatial analyses such as using ArcToolbox Tools to summarizing spatial data by geographic areas, calculating areas of polygons, etc. These analyses are often straightforward and

completed with one to two steps. The tool parameters may vary depending on the product desired; however, there are standards that will be enforced for these analyses. The following tools are the most commonly used.

3.6.3.1. Analysis Tools

The Analysis Toolbox is one of the most common toolsets used for both analyses and cartography purposes. Tools commonly used here are: Clip, Select, all the Overlay tools, and Buffer. Standards include:

- Datasets have the same coordinate system
- XY tolerance (cluster tolerance) is equal to zero or less than twice the output dataset's coordinate resolution.
    - Setting is ignore for feature datasets
- Topology has been validated for overlapping features and gaps

3.6.3.2. Analysis Tools, Statistics Toolbox

Within the Analysis Tools, the common statistics for vector attribute data are Frequency and Summary statistics. The standards for these tools include:

- Attributes of Input Table are complete and logistically consistent
- Selected Statistic Type is consistent and appropriate with the attribute value type
- Output Table is .csv or .dbf
- OutPut Table is reviewed for completeness and inconsistencies

3.6.3.3. Spatial Analyst Tools, Zonal toolbox

Zonal tools commonly used are Tabulate Area, Zonal Geometry, Zonal Histogram, and Zonal Statistics. Standards include:

- Datasets have the same coordinate system.
- Coordinate system is appropriate for zonal statistics, i.e. not geographic or web Mercator.
- If using a polygon dataset as feature zone data:
    - Polygon topology validated for non-overlapping and no gaps.
        - Attributes are complete and logistically consistent.
        - Zone field values are unique.
        - Feature class is free of empty geometry features
- Raster datasets cell size are significantly smaller than the minimum feature zone data area

3.6.3.4. Spatial Analyst Tools, Surface Toolbox

The Surface toolset is commonly used to process digital elevation models to create background hillshade datasets for cartography purposes. Standards for this geoprocess include:

- *Snap Raster* set to original raster dataset
- *Z Factor* is set to 1 unless exaggerated elevations are the intent

3.6.4. Reporting

Documentation of the geoprocessing steps as a report, memo, or metadata are stored with and provided with all distributed datasets that has been processed and distributed by PSP. If the data or the process encountered limitations or errors, these are also to be provided in the documentation.

An example limitation may be the use of watershed to summarize the National Land Cover Database (NLCD) and a subset of the watersheds are not sufficient in area to accurately summarize the 30 m NLCD data. The metadata and the summary table *must* note this limitation.

3.7. Projecting Data

One of the more common and critical geoprocessing techniques is the projecting of data from one coordinate system to another, or defining the projection of geospatial data that lacks a projection file.

Regardless of the format of the data, all newly projected data will be compared in ArcMap with the original data to ensure the projection was successful and features are aligned within an acceptable tolerance.

3.7.1. Defining a Projection

Data lacking a defined spatial coordinate system are projected but steps must be taken to decipher what coordinate system the data is using. This may occur if the projection file is lost or not provided by the source. Step to determine the projection are:

1. Identify the number of digits to the right of the decimal of the coordinates to isolate the system as UTM, State Plane, or Geographic.
2. Systematically display the data with unknown coordinate system in ArcMap with datasets of known coordinates to find a coordinate system match.
    a. Clear the display coordinate system to disable Projection-on-the-fly in ArcMap.
3. Once the projection has been identified, use the Define Projection tool in the Data Management Toolset, Project and Transformations tools to define the projection.

3.7.2. Vector Data

- Projecting vector data will use the appropriate transformation (section 3.4.4 Transformations), if required.
- Distance tolerance of geometry when comparing the new and the original datasets: 0 feature units

3.7.3. Categorical Raster Data, e.g. Land Use Land Cover

Projection of categorical raster data will have the following settings:
- *Resampling Technique* set to NEAREST neighbor
- *Output Cell Size* equal or proportional to source data
- *Snap Raster* set to original raster dataset
- Distance tolerance of grid cells when comparing the new and the original datasets: vary with the coordinate systems

3.7.4. Continuous Raster Data, e.g. Digital Elevation Models

Projection of digital elevation models (continuous raster data) will have the following settings:
- *Resampling Technique* set to BILINEAR interpolation
- *Output Cell Size* equal or proportional to source data
- *Snap Raster* set to original raster dataset
- Distance tolerance of grid cells when comparing the new and the original datasets: vary with the coordinate systems

3.8. Cartography

Where reasonable, PSP will follow National Map Accuracy Standards (NMAS) (U.S. Bureau of Budget 1947) for hard-copy, published, and publication maps.

3.8.1. Map Elements

PSP developed map element requirements based on the State of Oregon's guidelines (Table 9). This will be reviewed when Washington State has developed similar standards.
http://www.oregon.gov/DAS/CIO/GEO/standards/docs/OGIC_Map_Elements_Standard-DRAFT-20130605.pdf

Table 9. Map elements.

Item	Required	Notes and *Examples*
Title	Yes	*Example:* WA Land Cover
Legend or Key	Yes	Explanation of the symbology of the map data
Date of Data	Yes	Maps intended to show status or progress of ecosystem recovery must include a date associated with the data.
Map author's initials and date	Yes	The agency's URL may also be used. *Example*: Puget Sound Partnership (jlb), www.psp.wa.gov, May 23, 2015
Originating program	No	*Example*: Software: ESRI ArcMap ver. 10.1
Source files	No	*Example*: Source file(s): M:\gisdata\dev\maps\landcover.mxd, *or* \\dataserver\gisdata\dev\maps\landcover.mxd
Data source citation	No; except when using external data.	*Example:* Aerial photography from the U.S. Geological Survey, 2007.
Additional descriptive text	No	Dependent on map status, use, or content. *Example*: DRAFT, File request #1234567
Graphical Scale	Yes	Include at least one scale bar (usually in miles).
Numeric Scale	No	An optional representative ratio (1:24,000).
Originating agency and/or state logo	Yes	Follow agency guidelines. Use logos from other agencies, as appropriate, when they are contributors to the development of the map.
Geographic reference or locator map	Yes	Use depends on the scale of the map and the size of the area depicted. This may include latitude/longitude graticule or a "common" theme (e.g., counties) as a backdrop, and highlight the area being mapped.
North arrow	Yes	
Coordinate system including projection and datum	No	

3.8.2. Source Citations

All maps will include appropriate citations to external data sources when those sources appear in hard-copy or digital static maps. Citations must identify the source and year of the data, and may identify the data, e.g. Aerial photography from the U.S. Geological Survey, 2007; or U.S.G.S. Aerial Imagery 2007.

3.8.3. AGOL Resources

ArcGIS Online services offers interactive maps, story maps, and applications through the State of Washington organizational account. PSP uses these resources for short-term and long-term projects. Short-term projects include interactive maps to support meetings and discussions and have a life cycle of less than one month. Longer-term projects include interaction maps, story maps, and applications that reside on the Washington State Geospatial Portal and may be embedded in the agency's website. These resources are developed and maintained on an as-needed basis with the exception of PSP's boundary map and application.

3.8.4. Operational maps

For decision-making maps, which typically have a lifespan of a single meeting or day, the procedure is:
1. Data source and original format of the data received are preserved in a project folder file on the server
2. Latitude and longitude coordinate may require conversion to decimal degrees (5 digit precision)
3. Geospatial data are developed in a file geodatabase as points, polylines, or polygons
   - Polyline and polygons may be generated from points or heads-up digitizing
   - Head's up digitizing - National mapping standards with highest level of horizontal accuracy possible or acceptable
4. Data are displayed and reviewed for accuracy

Coordinates and datum will vary with the map medium. PSP will generally defaults to the Washington State Plane coordinate system and a horizontal datum of NAD 83 HARN, a state standard set forth by the WA RCW 58.20 (available at http://apps.leg.wa.gov/rcw/default.aspx?cite=58.20). The exceptions to the standard are when another coordinate system may benefit the user, e.g. cartography, spatial analyses, and web maps, and provide improved visual display and accuracy of products.

Feature services and map services are distributed to the public for online consumption in ArcGIS Online and ArcMap Desktop. Because the established projection for ArcGIS Online is Web Mercator Auxiliary Sphere, PSP's feature and map services are distributed in Web Mercator Auxiliary Sphere (Table 3).

Datasets provided as layer packages for download through AGOL and the WA State Geospatial Portal are in the State standard coordinate system.

3.8.5. PSP Publications

The GIS Manager provides multiple standardized map for three routine publications: Action Agenda and State of the Sound by PSP, and Salmon Recovery Plans by the Salmon Recovery Watersheds. The GIS Manager is responsible for designing the standardized map template used within each publication. The primary purpose of the Action Agenda and Salmon Recovery Plan maps are to display the boundaries for the Action Areas and LIOs in the Action Agenda, and the Salmon Recovery Watersheds in the Salmon Recovery Plans. The template is sent for review to the publication managers at least one month prior to publication or public comment period.

For the State of the Sound, PSP's partner agencies provide the spatial data for each Vital Sign/Indicator and coordinate the development of the map symbology and legend with the GIS Manager. Each map is sent to the Vital Sign/Indicator lead at the partner agency for final approval prior to publication.

3.9. Quality Control and Assessment

Quality control is the "overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated performance criteria established by the customer, operational techniques, and activities that are used to fulfill performance criteria for quality" (EPA, 2001b).

3.9.1. Data Development

Geospatial data and non-geospatial data are reviewed according to the specifications detailed in *1.5 Quality Objective and Criteria*. Additional data quality control measures include:

- Data are created in a file geodatabase
- Topology rules are enforced, if applicable

3.9.2. Digitizing

Where possible, polygons and polylines should share identical geometry and accuracy with existing PSP or other agency authoritative data, such that:

- Threshold is 0 meters or feet from the authoritative data sets.
- Heads-up digitizing (data capture) of authoritative datasets is used to generate the feature geometry.

When geospatial data are generated using head's up digitizing techniques, the follow is a quality control checklist:

☐ Source data are authoritative and appropriate in scale, accuracy, resolution, time period, format, and content

☐ Source data was generated according to National Map Accuracy Standards (US Bureau of the Budget 1947)

☐ Source data is projected in the same coordinate system and datum as the dataset being generated

☐ ArcMap coordinate system is consistent with the source material and the dataset to be generated

☐ Map scale is appropriate for digitizing effort accuracy and precision

☐ The follow methods are used to existing features from another dataset:

- Copy and paste
- Trace tool on the Feature Construction toolbar
- Replace Sketch

☐ Feature templates are used, if applicable

☐ Save often

☐ Review dataset according to specifications in this Section and Section 1.5 Quality Objective and Criteria

If data fail to meet criteria, the data are either edited to correct the error or archived and the process of generating the data repeated according to a modified methodology to ensure meeting quality assessment criteria.

3.9.3. *Imagery Geoprocessing*

In many cases, the default parameters and environment of the ArcToolBox tools are sufficient for PSP's geoprocessing. However, processing of imagery requires the following standards:

- All raster and vector datasets involved in a process must be in the same coordinate system.
- Snap Raster (Processing Extent in Environment Settings) is set to match original raster dataset if a new raster dataset or subset of the data is being generated.
- Output coordinate system is same as input.
- Raster resampling of cell size is equivalent or proportional to the original raster dataset
- Raster resampling uses BILINEAR interpolation for digital elevation data

3.9.4. *Latitude and Longitude Coordinates*

Partners may provide secondary data to PSP as latitude and longitude coordinates of projects for mapping purposes. PSP depends upon the source agency or project manager to guarantee the accuracy of the data provided. In this case, the following standards are required:

- Five digit precision
- PSP will assess:
  - If possible, relative positional accuracy through comparative visual inspection using base data/maps or ancillary data
  - Data completeness
    - Number of features
    - Attribute table content

3.10. Maintenance and Retirement

3.10.1. *Authoritative Datasets*

PSP's authoritative datasets are updated as needed by the GIS Manager at the request of the responsible program (Table 10). Updates include boundary adjustments using the standards mentioned in the section Quality Control and Assessment, and attribute updates.

Updates occur when the managing program requests an update or there is a change in managing personnel resulting in a change in the boundary file's attributes. Datasets and metadata are updated using the follow steps:

1. A new file geodatabase is created.
2. The previous version is copied to the new geodatabase.
3. Geometry or attributes are updated in the new geodatabase.
4. Metadata are updated in the new geodatabase.
5. Previous version is retired to an Archive folder within the same folder.
6. Map created to review the dataset by the appropriate program lead, if needed.
7. RCO server and services are updated by overwriting the existing service.

Table 10. PSP's authoritative datasets.

Authoritative Dataset	Program Responsible
Action Areas	Planning Program, Science Program
Salmon Recovery Watersheds Local Integrating Organization	Ecosystem Recovery Coordinators
ECO Net	Stewardship Program

3.10.2. *Secondary Datasets*

Secondary datasets require the most maintenance for the GIS Manager. All downloaded secondary data must include metadata so that the GIS manager can verify currentness with the source data download website. In addition, when the data is downloaded to the appropriate z_SourceData folder, the download file name will include the date of the download, e.g. NHD_V2_11_23_2013.zip for easy reference.

Secondary data are retired if a more current version exists from the source. Retirement of secondary data follows the same standards for Operational Datasets (see section below) except for legacy/historic data. Legacy/historic data such as land use land cover from previous years are NOT retired since these data are of use for specific analyses. Determination of legacy/historic data is at the discretion of the GIS Manager or PSP staff.

3.10.3. *Operational Datasets*

Operational datasets are data that have been manipulated, edited, or projected for a limited purposed, typically a specific cartographic request. These data usually have a short life cycle predominantly spanning one day and less frequently one year, e.g. streams for the State of the Sound reference map. To clarify the purpose of the data, the names of the spatial feature classes and rasters should include, if appropriate, the purpose of the manipulated data.

If the data are no longer relevant to PSP or its partners as determined by the GIS Manager, these data and associated documents (tables, maps) will be retired in one of the following two ways:
- Relocated to an Archive folder in the topic folder if there is a potential future need
- Deleted if:
    - Data are erroneous or not what was requested/needed for a map
    - More up-to-date data or analyses would replace the data (*predominately the case*)
    - Redundant with existing data
    - No future use is identified

3.10.4. *Analytical Datasets*

Analytical datasets are managed and maintained using the same procedures as operational datasets.

3.11. Dissemination of Spatial Data and Maps

3.11.1. *Authoritative Datasets*

PSP distributes the four authoritative datasets using ArcGIS server and ArcGIS Online through the Washington State ArcGIS Online Portal [http://wa-geoservices.maps.arcgis.com/home/index.html] and organizational ArcGIS Online license. PSP follows the ArcGIS Online best practices and guidelines provided by the State of Washington OCIO GIS Program. These data are available as feature and map services and available for download by the public.

3.11.2. Operational Datasets

PSP hosts operational datasets using the same methods as the authoritative datasets with the exception that these data are often limited in use and audience, e.g. a specific meeting that required an interactive map for one day. Therefore, operational data are not available for public download.

3.11.3. Analytical Datasets

Datasets derived from spatial analyses or specific projects may be disseminated using the same methods and maintenance as the authoritative datasets. This will included data from high level spatial analyses projects that are not addressed in this QAPP; these datasets will have their own QAPP.

3.11.4. Basemaps

PSP does not download, manage, or disseminate basemaps. These are provided by the authoritative source as a service for consumption by PSP in maps.

4. Project Management

GIS project ideas or needs are initiated with a discussion with the GIS Manager. The GIS Manager will first ascertain if the project meets the business needs of the agency during the initial discussion, if the project is feasible within the existing time line provided, and if data are available to accomplish the project. If the project is feasible and within PSP's business needs, the project is scheduled according the GIS Manager's work load and existing priorities.

The following information is obtained from the GIS map requestor:
- Schedule for the project?
- Who is the audience for the map?
- What is the purpose of the map?
- What data will be provided for the map?
- What documentation needs to accompany the map?
- What contextual information (state and county boundaries, labels, hydrography, etc.) should be included on the map?
- Who will review the map for accuracy?
- Output format of the map?

4.1. Map and Project Workflow

1. Identify project objectives and requirements
2. Identify feasible time line
3. Identify data sets and spatial analyses needed
4. Specify spatial representation (point, polyline, polygon, raster)
5. Specify medium of product and intended audience
   a. Publication
   b. Hard copy map
   c. Interaction online map
   d. Presentation
6. Establish necessary folders with a standardized naming convention for all products
7. Inventory existing data

8. Determine data collection needs and potential sources
9. Acquire available data
10. Project spatial data to necessary coordinate system
11. Geoprocess spatial data if necessary
12. Identify or design Attribute fields
13. Specify Valid Attribute Values And Relationships
14. Validate and QA checks
    a. Completeness of data
    b. Attribute accuracy
    c. Logical consistency
    d. Physical consistency
    e. Positional accuracy
    f. Precision of data
15. Generate product, e.g. map, spatial data set, reporting data
16. Generate metadata and tags; validate metadata
17. Identify if a QAPP is required or needed?
18. Publish product, i.e. online, if applicable
19. Generate and Publish QAPP with data
20. Maintain or archive product
21. Review and optimize procedure used to generate product

4.2. Publishing feature and map services

1. Project datasets to Web Mercator Auxiliary (ArcGIS Online standard), if needed
2. Migrate required datasets to the SDE server if needed
3. Ensure datasets have minimum metadata if it is an operational dataset, full metadata if authoritative dataset
4. Develop .mxd file with appropriate feature datasets from SDE server
5. Publish using Share as Service
6. Check Publish as Service
7. Select the existing folder on the development or production server at RCO
    a. Development is gismanagerweb.rco.wa.gov
    b. Production is gismanager.rco.wa.gov
8. Service name should be proceeded with **WAPSP_***xxxx*, where xxxx is a unique meaningful name
9. Using the Service Editor, use the following settings:
    a. **Capabilities** set to features and mapping
    b. **Feature Access** set to:
        i. Create NO
        ii. Delete NO
        iii. Query YES
        iv. Update NO
        v. Do NOT check the Allow Geometry Updates
    c. Complete the **Item Description**

10. Analyze the data and address errors and warnings
11. Publish
12. Review data or map online for errors or issues

5. Performance Management

PSP established measures of success for the GIS Manager and the program to gauge the progress of the program and the services provided Table 11.

Table 11. GIS Program performance measures.

Objective	Measure	Annual Target	Risk
Establish data standards	Documentation of PSP geospatial data standards	Annual update of this document at the end of the calendar year	
Establish and maintain data file structure	Update document file structure in this document	Yearly re-organization	
Successful maps	Follow up and obtain level of satisfaction; recorded with map request	100% satisfied	Insufficient time
Elevate visibility of services	Number of views online (provided by Esri)	40 or more views	Relevance of data
Data Storage and recovery	Daily back-up	Quarter testing of back-up	
PSP Boundary datasets published on WA Geospatial Catalog	Four datasets up-to-date and publicly available	Updated as needed	Boundaries are not finalized by partners
Provide online web maps and applications	Ongoing	Ongoing	Time
Analyses in Workplan, e.g. Stewardship, NTAs, etc.	Complete Work plan tasks	Same as measure	Time
30% FTE	Track time per request	2850*0.30 = 855 hours	Reprioritization of work plan
Update PSP Vital Sign web maps	Annual update of those with new data available	100% up to date at end of calendar year	Partner providing usable data
Training – Staying current	Conference attendance	Annual attendance at Esri, WA State GIS or NW Users annual conference	Travel budget
Training – Update skills	Class completion	One or more classes	Budget
Certification	Esri certificate	Current certificate	Budget and time

6. References

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[http://www.chesapeakebay.net/content/publications/cbp_33365.pdf]

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Appendix A: IT Planning and Assessment Guidelines

This guide will help you prepare and manage your agency's technology portfolio. It describes the role planning plays in the portfolio management process; provides a practical approach to making technology investment decisions; and introduces tools to assist you in the process. Use of the concepts and tools presented are not mandated. Agencies may select other methods and processes to make technology investment decisions.

Elements of IT Portfolio Management

IT portfolio management provides an integrated approach to the identification, selection, control, evaluation, and life cycle management of technology investments.

The process may be viewed as consisting of three interrelated components:

- Planning and Selecting Technology Investments — Making decisions based on agency strategies and business requirements regarding the selection, continuation, or cancellation of investments. Risk assessment approaches described in Section V of this document will help the agency consider proposed investments by choosing from a variety of different tools.
- Managing Established Investments — Making sure that once technology investment decisions are made, performance expectations are achieved, costs are kept within budgeted resources, and schedules are met.
- Evaluating the Performance of Investments — Including baseline, ongoing, and new investment assessments.

Figure 1: IT Portfolio Management Process

```
┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│ Agency business  │   │   Portfolio of   │   │   Portfolio of   │
│ strategies,      │   │   current IT     │   │   potential IT   │
│ objectives,      │   │   investments    │   │   investment     │
│ performance      │   │                  │   │   alternatives   │
│ measures, and    │   │                  │   │                  │
│ processes        │   │                  │   │                  │
└──────────────────┘   └──────────────────┘   └──────────────────┘
         \                      │                      /
          \                     ▼                     /
           ┌──────────────────────────────┐
           │   IT analysis and            │
           │   feasibility analysis       │
           └──────────────────────────────┘
                          │
                          ▼
           ┌──────────────────┐          ┌──────────────────┐
           │   Proposed       │ ───────▶ │   Budget         │
           │   IT             │          │   Decision       │
           │   investments    │          │   Packages       │
           └──────────────────┘          └──────────────────┘
                          │                        │
                          ▼                        │
           ┌──────────────────┐                    │
           │   Approved       │ ◀──────────────────┘
           │   IT             │
           │   investments    │
           └──────────────────┘
                          │
                          ▼
                  (  Project initiation  )
```
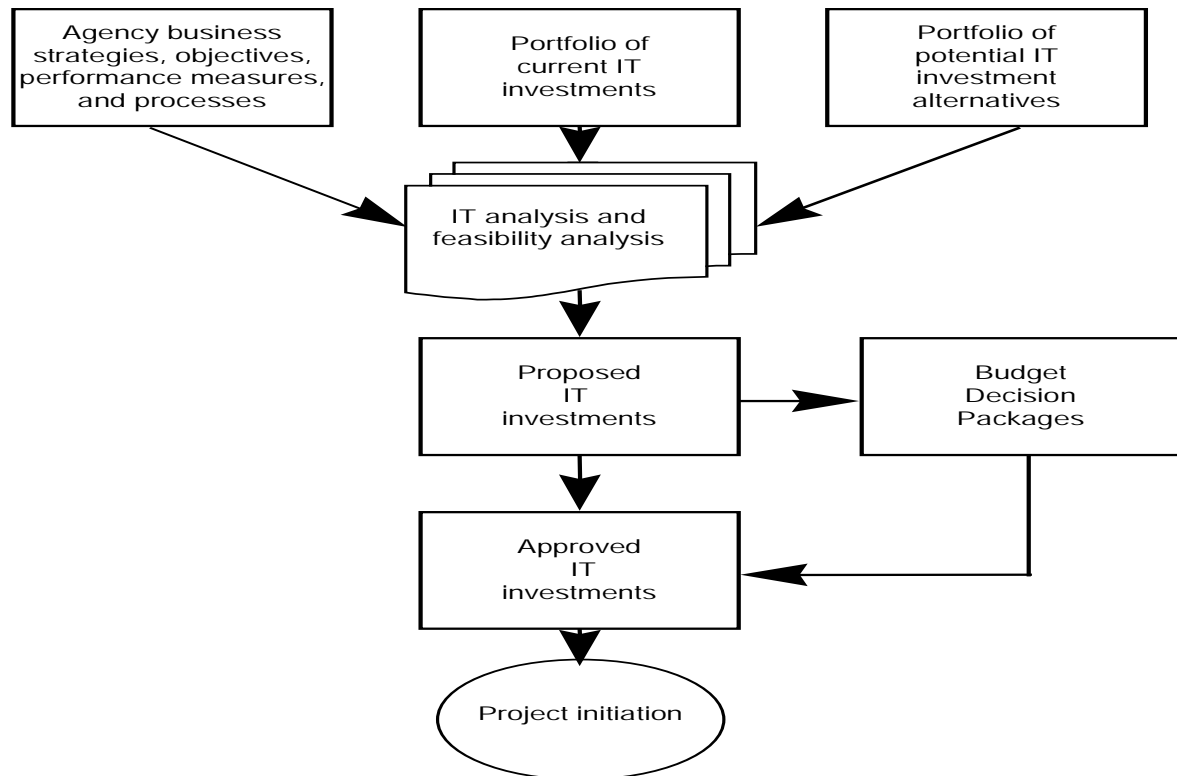
Critical Success Factors

Successful portfolio planning includes the following practices:

- Agency executives are actively involved in the portfolio management process
- Portfolio decisions are linked to the agency's business plan and budget and are consistent with state and agency technology policies and standards
- Decisions are based on the best available cost, benefit and risk information
- Previous projects are reviewed to determine if the desired objectives were met (cost, schedule, quality, etc.)

Emphasis is on maximizing value to the agency and the state while managing risk. Portfolio management helps decision-makers determine the real value of technology to the agency. The process builds on a traditional cost-benefit analysis approach for making financial investment decisions, but is tailored to technology products and services. The concept refines the definition of costs, suggests a way to quantify both tangible and intangible benefits, and recommends strong business justification as the basis for all technology decisions.

APPENDIX A: IT Planning and Assessment Guidelines

In the sections to follow, the process of portfolio assessment, investment planning and selection, and project development are discussed.

- Section II describes the portfolio planning process and how it differs from planning efforts in the past, the recommended planning structure, and the steps in the planning process.
- Section III describes IT portfolio assessment.
- Section IV summarizes the process for developing new investments.
- Section V briefly describes several assessment tools that can be used to conduct the baseline assessment as well as evaluating the merits of new investments.

IT Investment Planning

IT investment planning is a systematic process for linking each agency's investment in IT to its business strategies, objectives, programs, and processes. The planning process includes:

- Determining how well technology is currently meeting the business needs of the agency
- Identifying service gaps or technology opportunities that could improve agency performance
- Defining investments that will deliver desired business outcomes as well as customer satisfaction levels with the best value over the investment life cycle

At the heart of portfolio management lies a strong partnership between the business and technology domains of the agency. The business domain is the user of IT, while the technology domain is the supplier of technology services. The two domains must forge a partnership for portfolio planning and management to be effective. Figure 2 illustrates the continuous interaction between the business and technology domains in the portfolio planning process.

Four Dimensions of Technology Planning

As shown in Figure 2, the portfolio-planning model involves four types of planning activities.

Figure 2: Dimensions of Portfolio Planning

Figure 2 Dimensions of Portfolio Planning
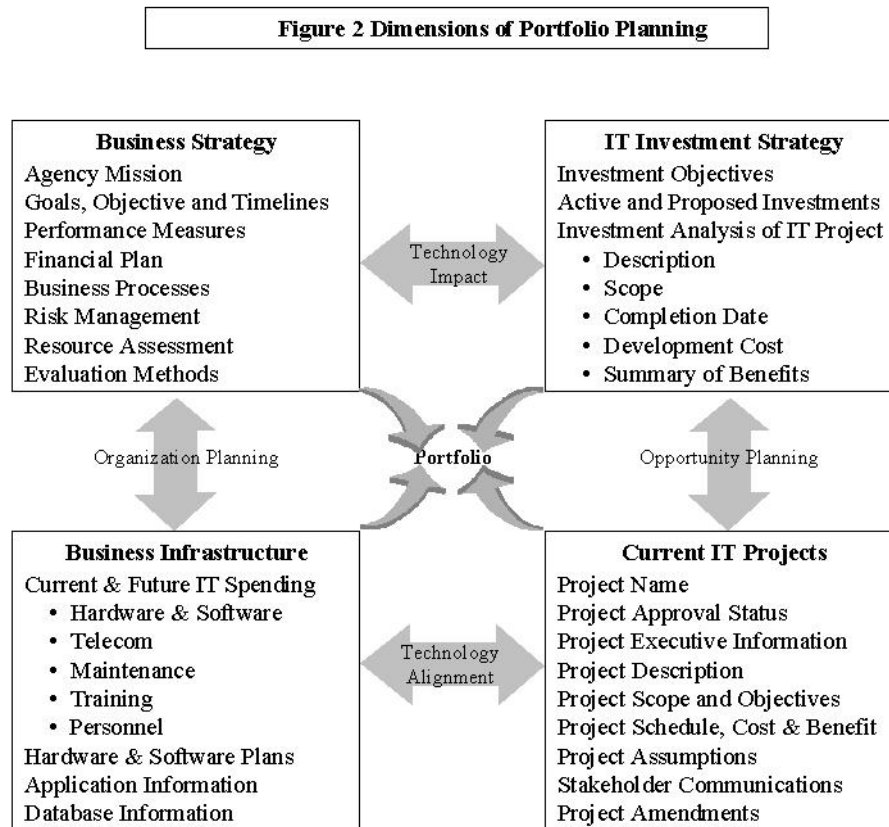
- **Organization Planning** — Begins with the agency's business strategy and defines the organizational structure and processes necessary to implement technology.
- **Technology Alignment** — Begins with the agency's business organization and processes and generates the information systems and applications that meet business needs.
- **Opportunity Planning** — Begins with the agency's existing technology inventory and defines current and future resources that may be deployed to change the business strategy and/or improve support for programs.
- **Technology Impact** — Begins with technology opportunities and generates changes to the business plan in terms of new strategies, products, services, customers, or customer interfaces.

Portfolio management differs from traditional planning models that typically focus on the automation of existing business processes (alignment planning). Portfolio management demonstrates how technology can enhance basic business strategies and methods. New problems, enhanced knowledge, advancing technology, and management perceptions drive plan changes and present new opportunities to improve business performance.

Portfolio Planning and IT Plans

The portfolio planning process replaces the development of agency strategic and tactical plans for IT. It structures executive decision-making in the selection of IT investments and feeds directly into the biennial budget process. Once an investment has been approved and

resources allocated, implementation of the investment falls under the policies, standards, and guidelines that have been established for project management.

Portfolio planning will help ensure that IT will effectively support the accomplishment of the agency's business strategies. As shown in Figure 2, it can also play an important role in shaping those strategies. The planning process can identify opportunities for program improvements that may significantly affect future business goals, plans, and strategies. For example, in many agencies the identification of opportunities for the use of electronic funds transfer has enabled fundamental business process improvement. Similarly, geographic information system technology may offer a whole new paradigm for the organization and use of information in agencies whose missions revolve around geographic considerations.

How Portfolio Planning Differs from "Strategic" and "Tactical" Planning

Portfolio planning uses the portfolio as the foundation for a continuous planning process resulting in a technology investment plan that identifies the technology strategies, goals, and new projects required to meet the business needs of each agency.

The technology portfolio is a working document that is maintained and continually updated by the agency. The Investment section of the portfolio must be updated on an annual basis during the budget cycle for the biennium or the supplemental budget and is updated more frequently when an agency identifies new problems or opportunities requiring a technology investment.

All investment decisions are based on cost, benefit, and risk assessments or driven by federal and legislative mandates or other external mandates. Investment performance is measured regularly to ensure that all investments contribute to the overall strategic business plan of the agency.

Organizing the Planning Effort – An Integrated Planning Process

Strategic planning for IT should be integrated into each agency's overall business strategy planning process. As previously noted, a close partnership between program management and technical management is essential for effective portfolio planning. Each agency's senior technology manager, its Chief Information Officer, should be a member of its strategic planning work team.

The tasks that are traditionally associated with the strategic planning process provide useful vehicles for integrating business and technical strategies. Stakeholder analysis, for example, should include the needs and expectations of both users and suppliers of IT. Analyses of internal strengths and weaknesses should address the strengths and weaknesses of the agency's technical infrastructure and its ability to respond to user needs. Similarly, the assessment of external opportunities and threats is an excellent channel for bringing technology issues, ranging from Year 2000 compliance issues to particularly promising new technologies, into the planning process.

If your agency anticipates using IT in conjunction with major business process improvement initiatives, has a relatively complex technical infrastructure, or has successfully adopted one of the formal, structured methodologies for technology planning, then it should establish a technical working group to support the overall strategic planning team. This working group should include agency executives, technical managers, and knowledgeable representatives of user management. The group charter should clearly state that its responsibility is to support the agency's overall strategic planning program, not develop an independent technical strategy.

APPENDIX A: IT Planning and Assessment Guidelines

Linking Technology Investments to the Agency's Strategic Business Plan and Budget

With the 1997-99 Biennium, the state adopted a performance-based budgeting system that closely links each agency's strategic business plan with its budget. Agencies are required to directly tie their missions, goals, objectives, strategies, and performance measures to their financial plans.

Technology plays an important role in enabling each agency to accomplish its mission and program goals by supporting and enhancing basic business processes. Increasingly, technology is involved in every aspect of agency program operations. Therefore it is essential that technology planning be an integral part of the agency's overall performance-based business and budget plan. A major goal of portfolio-based IT management is to ensure the integration of business and technology visions.

Technology Planning Summary

Although the development of technology plans should be integrated within each agency's overall planning process, the following sequence of activities will help ensure that technological opportunities are identified and justified. The accomplishment of these steps should be the responsibility of the agency's strategic planning team, with support from its technical management and staff or a specialized work group of technical management and experienced technology users.

- **Assessing performance**. Assess the performance of the existing technology investments to establish a baseline. A technology portfolio measures how well existing investments are performing in terms of the business needs of the agency.
- **Identify service gaps or technology opportunities**. Planning is the process of analyzing business requirements, identifying problem areas, or identifying technology opportunities that will improve the business performance of the agency.
- **Identify alternatives.** Identify and assess alternative solutions for filling service gaps and/or take advantage of technology opportunities.
- **Implement investments and evaluate project/portfolio performance.**   Implement the best solution and evaluate its performance to determine the success of the planning effort. Technically not a planning step, project implementation concludes the planning cycle. The evaluation provides the data for the next planning cycle. Performance data resulting from a systematic assessment process of existing and proposed investments is needed throughout the portfolio planning and management process in order to make informed planning, selection, and management decisions.

IT Portfolio Assessment

Agencies are required to conduct annual assessments of their IT portfolios. These assessments examine how well existing investments are meeting the business needs of the agency, identify problems with the management of existing investments, and suggest opportunities for improving agency performance through new technology investments.

Costs, Benefits and Risks — Key Factors in Portfolio Assessment

Considerations of costs, benefits and risks should be continually applied throughout the planning, selection, management, and evaluation phases of portfolio management. New or continuing portfolio investment decisions should be based on analyses of these factors.

- Costs (Recurring and Non-Recurring)

- – One-time costs, such as hardware and software, design and development cost
- – Ongoing costs such as salaries, software upgrades, training, supplies, and maintenance
- – Indirect costs such as initial productivity losses, network management, and data administration
- Benefits
  - – Tangible benefits include those directly linked to the achievement of the agency's business strategy that can be explicitly quantified (e.g., cost reductions, productivity increases, processing time reductions, service quality improvements, etc.)
  - – Intangible benefits include those directly linked to the achievement of the agency's business strategy that are difficult to quantify (e.g., greater data accuracy, improved data security, improved organizational knowledge, more efficient decision making, etc.)
- Risks
  - – Strategic risk assessment ensures that proposed IT investments are aligned with the agency's strategic direction as set forth in the agency business plan
  - – Financial risk is associated with the costs and duration of the development effort
  - – Capability or project management risk is associated with the organization's capability of carrying out the changes required by the project, including management skill and experience
  - – Technology risk is associated with the technology that will be used to implement a proposed application or system
  - – Organizational impact or operational risk is associated with the degree and complexity of the changes to the business rules and processes

Agencies should assess their technology investments in terms of the performance of individual investments as well as the portfolio as a whole. A financial portfolio is measured by its overall gain or loss. Although individual investments may be profitable, if the overall results for the portfolio are below market benchmarks, the portfolio will not receive a positive rating. Market benchmarks in this context relate to at least the return on investment (ROI) being equal to or greater than original expectations. Successful projects are those that reach the expected outcome. Technology portfolios should be viewed in a similar fashion.

Portfolio-Level Assessment

Piecemeal assessment can result in the allocation of scarce resources to individual investments that are counter-productive in terms of the overall needs and expectations of the agency. Questions concerning interoperability, common architecture, or public information access cannot be resolved by assessing individual investments as separate entities. Viewed in isolation, an investment may appear to be justified; however, when considered within the context of other agency technology investments, it may prove to be redundant or inconsistent with the agency's overall technology strategy.

Therefore it is essential that each investment in the portfolio be assessed to ensure the investments support the strategic vision of the agency and are individually and collectively cost-effective. Portfolio assessment draws upon data about individual applications and projects, but it is not simply an aggregation of such data. It is necessary to assess each current and proposed investment in terms of its value in the context of the agency and state-level technology strategies.

Suggested below are some questions that will help you assess the value of the technology portfolio in achieving your agency's strategic vision.

- How well has the entire technology portfolio contributed to the achievement of the agency's mission, business goals, and objectives? Is technology producing cost-effective results?

APPENDIX A: IT Planning and Assessment Guidelines

- How well are technology investments being managed? Has the technology portfolio been reviewed to identify and reduce redundant and low value applications? Have legacy/old applications, data, and infrastructure been considered for integration into new systems or replacement? Have new opportunities for consolidation and sharing been pursued?

- Is the agency maximizing the business value and cost effectiveness of technology? Is the agency leveraging its technology resources across its entire operation? Can resources be shared or consolidated?

- To what extent do current technology investments employ a common architecture? What links need to be developed for interoperability and data sharing?

- What has been done to ensure appropriate public access to agency information and the ability to do business with the agency using technology resources?

One tool to assist agencies in measuring the effectiveness of their technology portfolios in achieving their business strategies is the "balanced scorecard" methodology. The balanced scorecard approach, which has been adapted to public agency settings by the U. S. General Accounting Office, helps to translate business strategies into technology objectives, measures, and performance targets. For a more complete discussion of the balanced scorecard in the public sector, please see Appendix B.

Assessing Individual Investments

Each investment, application, or project in the portfolio should be assessed to determine how it is linked to the business plan. Benefits, costs, and risks should be measured. In addition to the information included in the portfolio itself, effective assessment may require that you review feasibility study reports, post-implementation studies, and program management reports.

Section V of this guide suggests some tools for conducting assessments of individual investments; however, you may use any combination of methodologies that together address:

- Cost/benefit ratios or other financial measures, such as ROI, that allow you to measure the investment against desired rates of return

- The investment's linkage to the business plan — agency strategies, goals and objectives, performance measures, and business process improvements

- Evidence that the project complies with state technology policies and standards

- Expected versus actual performance data measured against acceptable variation between expected and actual results

- A description of the risks associated with the investment and the success of the agency in controlling those risks — again measured against a level of acceptable performance

The assessment provides agency decision-makers with essential performance information about each individual investment and the portfolio as a whole. The process should validate most investments in the portfolio, but it may identify some for immediate or future elimination. Other investments may need active monitoring or even reassessment using a more detailed or rigorous assessment tool. The results of the assessments should be hyper-linked and Section 4 of the portfolio should be appropriately updated.

Developing New Investment Proposals

IT portfolio management is a continuous and dynamic process. Figure 3 illustrates how new agency investments are incorporated into the portfolio. Each investment should be evaluated and supported with sufficient justifying evidence on which to base a selection decision.

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An agency's decision to approve a new investment should be based on:

- The relative benefits, costs and risks of the project in comparison to all other proposals
- The strength of the project's linkage to the agency's strategic business plan
- Adaptability to future business needs and priorities
- Completion of the project's development cycle (or stand-alone increment) within two years

The contribution the proposed technology will make to the agency's technical infrastructure, including but not limited to analysis of the following:

- Use of existing assets including hardware, software, tools, and programs
- Ability to capture, analyze, maintain, and share data
- Robustness of the proposed solution and the estimated life expectancy of any developed system
- Reliability and ease of use of the user interface
- The reusability of any programs, purchased software, or tools
- Interoperability and scalability of any purchased or developed components
- The use of industry accepted standards for connectivity and open systems
- Ease of maintenance

In general, high risk (as identified in the IT Portfolio Structure and Content Standards, Appendix A) and multi-biennia investments are subject to OCIO and TSB prior approvals. Once an investment has been identified by the agency, it should be included in the Planned Projects/Investments section of the portfolio and ranked against other possible investments.

APPENDIX A: IT Planning and Assessment Guidelines

Figure 3: Selecting New Investments
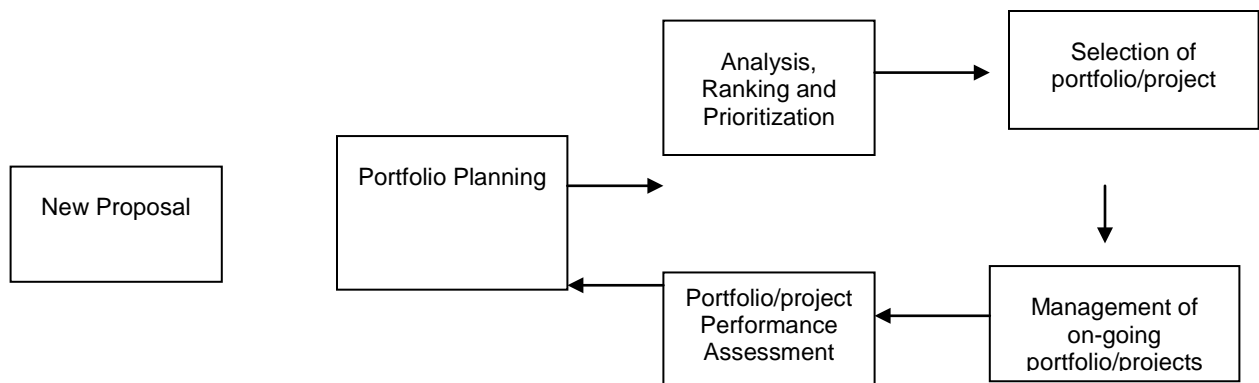
The process of conducting the annual portfolio assessment will identify gaps in the agency's technical infrastructure and suggest opportunities for improving agency performance through new technology investments. Once a problem or opportunity has been identified, you can begin the process of identifying and prioritizing possible new investments — a systematic and rigorous process of compiling data, identifying alternative solutions and analyzing the associated costs, benefits and risks of each alternative.

Responsibility for Selecting Investments

Primary responsibility for selecting IT investments lies with the head of each agency. The identification and assessment of technology investments in support of this executive responsibility may be overseen by the agency's strategic planning committee or by a separate IT portfolio planning team. In either case, detailed program and technology input should be drawn from both user and technology staff. The process of identifying and documenting technology investments is essentially similar to the project planning and justification stages in the state's established technology management process. As in the past, development follows the normal steps in the technology project cycle. At each succeeding step in the process, agency management has more information on which to make decisions to continue or curtail further investment.

Documenting Proposed Investments

Summary information about each proposed new investment must be included in the Planned Projects/Investments section of the portfolio investment plan. The format for the portfolio is specified in a separate document entitled, "IT Portfolio Structure and Content Standards." This summary information should be based on the best information about the investment that is currently available to the agency.

If a proposed investment requires OCIO or TSB approval, the agency should be prepared to supplement the information provided in the portfolio with whatever additional evidence it thinks appropriate to demonstrate the merits of the investment. Similarly, if the investment requires a budget action, the agency should be prepared to provide whatever additional information is specified in the current budget instructions.

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Agencies should retain documents — such as business process improvement studies, requirement analyses, or feasibility study reports — used in preparing the investment analysis for possible review or audit by the OCIO.

Analyzing and Justifying Proposed Investments

Each agency is responsible for analyzing and justifying its proposed IT investments and providing evidence that each will bring an appropriate return from the expenditure of scarce public resources and further agency and state-level priorities. In most cases, this analysis and justification should include:

- IT Investment Definition — A high-level analysis that addresses the business needs of the agency and the proposed scope, schedule, and cost of the investment
- Comparative Assessment of IT Investment Alternatives — Ranks alternatives in terms of agency priorities, as well as relative costs, benefits and risks
- Feasibility Study — Provides an in-depth analysis of the desired results of investments and examines the technical requirements of the project, the relative costs, benefits and risks of each technical alternative, and lays out a project implementation plan

The information developed through the investment definition and comparative analysis steps will normally be sufficient for executive decision-making and, if required, OCIO or TSB review and approval of proposed IT investments. In some cases, agencies may be asked to provide supplemental documentation to support control agency review and approval.

Investment definition, comparative assessment, and feasibility studies are discussed in the remainder of this section.

Investment Definition

The investment definition establishes the initial expectation of scope, schedule, and cost for a possible IT investment. The analysis should follow from a general design and requirements analysis and include:

- Background Statement and a discussion of the reasons for the investment
  - Business environment
  - Business needs
  - Business opportunities
  - Business service goals
  - Statutory requirements
- Objectives — the primary outcomes of the investment
  - Problems that will be solved and/or opportunities for business process improvement
  - Service delivery enhancements
  - Response to statutory requirements
- Project Impacts — other agencies or entities affected by the investment
  - Interagency
  - Intra-agency
  - Programs/Subprograms
  - Agency customers (i.e., clients, constituents, taxpayers, etc.)
- Organizational Effects — describe (as applicable) how implementation of the investment may affect the agency
  - Impact on work processes
  - Need for training

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- – Changes in job content
- – Changes in the organizational structure
- Description of the proposed solutions chosen and of the alternative solutions considered but not chosen
  - – Positive aspects of the chosen solution, that is, factors that ultimately made the approach the most desirable
  - – Shortcomings of the considered alternatives that made them ultimately less satisfactory in the project analysis under consideration
- Cost Projections

  An estimate of the total project cost for each phase of the investment from definition through implementation. You need to be able to document the methodology used to develop the estimate

- Cost-Benefit Summary

  An initial cost-benefit analysis of the proposed investment

- Estimated Time Frame

  An estimation of the time required to implement the investment

- Conformity with Agency Plans

  An analysis of how the proposed investment supports the agency's strategic business plan and the relationship between the investment and other current and proposed technology investments in the technology portfolio.

- Project Management and Organization
  - – Determination of the project management approach for the investment
  - – Roles and responsibilities
  - – Decision making process
  - – Management qualifications
  - – Quality assurance/oversight
  - – Risk management
  - – Procurement strategy
  - – Measures of success

Fiscal requirements

The estimated budget for the investment, including funding sources and spending plan.

Comparative Assessment

The purposes of the comparative assessment of proposed IT investments are to establish priorities among investment alternatives and to ensure that each investment is viewed in light of its impact on other current and proposed investments. The various investment definitions and the Project and Infrastructure sections of the agency's portfolio provide data for the assessment. Typical questions that should be addressed in conjunction with the assessment include:

What are the relationships between each proposed investment and other active and proposed investments?

To what extent does each investment enhance or restrict the value of other investments?

Is the success of any investment contingent upon the successful implementation of other investments or completion of ongoing projects?

APPENDIX A: IT Planning and Assessment Guidelines

What criteria should be used in establishing the priority of agency IT investments and what should be the relative weight of each criterion?

How well does each proposed investment satisfy each criterion? What is its total score?

How should proposed investments be ranked for budgeting and resource allocation?

Agencies may establish any comparative assessment methodology that they feel is appropriate to support executive decision-making. The methodology should be systematic and fully documented, and the results of the assessment must be hyper-linked to, or referenced by the agency's portfolio.

Feasibility Study

A feasibility study is a rigorous examination and documentation of the costs, benefits and risks of an IT project and provides a transition from investment analysis to project management. The study builds on analyses and information already collected during the definition step of the portfolio management process. The scope of the study should be commensurate with the nature, complexity, risk, and expected cost of the project. Only very limited projects do not normally necessitate a feasibility study. These include projects of less than six months duration, that require minimal changes in the agency's business processes, or that respond to problems or opportunities with a straightforward solution based on off-the-shelf products.

The feasibility study should document:

- The problem or opportunity in terms of the effect on the agency's mission and programs
- The organizational, managerial, and technical environment within which a response to the problem or opportunity will be implemented
- Specific service level and/or financial objectives to justify the investment
- Functional requirements
- The identification and evaluation of alternative courses of action for each established objective
- Economic analysis (i.e., cost-benefit analysis) for each alternative which meets the established objectives and functional requirements
- Risk analysis for each alternative
- Risk mitigation plan for the selected alternative
- The selection of the alternative that is the best response to the problem or opportunity
- Project work plan for implementation of the proposed action

You may access the feasibility study guidelines and cost benefit analysis tools at: http://isb.wa.gov/policies/default.aspx.

Tools for Making Technology Investment Decisions

When using any assessment tool, keep in mind that assessments are dependent upon both soft and hard data. The responsibility of the agency is to provide a body of evidence in support of each proposed technology investment that will persuasively demonstrate that the investment is in fact a sound use of scarce public resources. Quantification of data to score or rank projects should be done whenever feasible; however, many aspects of the assessment process, such as the determination of benefits, will require an examination of both tangible and intangible benefits.

Methods that can be used for assessing, ranking, and selecting new investments are listed below and further detailed in Appendix B.

APPENDIX A: IT Planning and Assessment Guidelines

An Information Economics Model

Information economics helps decision-makers determine the true value of IT and is based upon the concepts of value and two-domain analysis. Value is the contribution technology makes to enable the success of the business domain. The two-domain analysis separates business and technology to determine the impact of a technology investment on each domain. (Each of the impact measures listed below is defined in Appendix B.)

Business domain impact measures:

- Return on Investment (ROI)
- Strategic match (SM)
- Competitive advantage (CA)
- Management information support (MI)
- Legislative implementation (LI)
- Organizational risk (OR)

Technology domain impact measures:

- Strategic technology architecture alignment (SA)
- Definitional uncertainty risk (DU)
- Technical uncertainty risk (TU)
- Information system infrastructure risk (IR)

To evaluate a proposed project, the planning team and/or senior managers assign scores for each factor based on its value or risk to the agency and a weight reflecting the factor's relative importance to the agency. For a more detailed explanation, please see Appendix B.

Federal Assessment Model

The federal assessment model provides an assessment method derived from the information economics model. This model weighs costs, benefits and risks for proposed projects and scores them based upon five factors: linkage to the business plan, mission effectiveness, organizational impact, risk and cost-benefit ratio. By scoring all proposed new investments with this tool, decision-makers can readily see which projects appear to have the greatest value to the agency. Appendix B provides a description of the scoring technique and a hypothetical example using the method.

Balanced Scorecard

As noted above, the balanced scorecard is a results-oriented planning and assessment approach that integrates business, technology, and financial planning processes. The balanced scorecard translates business strategies into technology objectives, measures, and performance targets. Unlike other methods that focus solely on financial perspectives, the balanced scorecard uses three additional perspectives: the customer, internal business processes, and organizational learning and growth. Together, these perspectives give a comprehensive view of how technology is performing in relation to the agency's vision and business strategy. Proposed new initiatives or projects also are assessed to determine which ones have the greatest potential for contributing to the achievement of agency objectives.

To apply the balanced scorecard approach, a portfolio steering committee links specific business strategies to desired technology results. Based on the agency vision and strategy, the steering committee sets objectives by identifying success measures. Then specific measures are developed to gauge achievement of the objectives in relation to the customer, learning and growth, internal business processes and financial areas.   Balanced scorecard matrices are

APPENDIX A: IT Planning and Assessment Guidelines

provided in Appendix B. Using the results obtained from using the balanced scorecard, decision-makers can readily see the strengths and gaps in their technology portfolio.

Other Tools

- Cost-Benefit Analysis

Cost-benefit analysis is a systematic quantitative method of assessing the desirability of projects or policies. A standard source for governmental agencies is the federal Office of Management and Budget Circular A-94 which provides an excellent guide to cost benefit analysis.

The following list of typical costs and benefits associated with technology projects may be used. The list of benefits includes both the tangible and intangible benefits of a project.

Costs	Benefits and Opportunities
Non-recurring - hardware - software - network hardware and software - software and data conversion - site preparation - installation - initial loss of productivity Recurring - hardware maintenance - software maintenance - systems maintenance - data administration - software development - communications - facilities (rent) - power and cooling - training	- Higher productivity, increased capacity - Reduced cost of rework, scrap, failure - Reduced cost of technology operations and support costs - Reduced cost of business operations - Reduced errors - Improved image - Reduced material handling costs - Reduced energy costs - Better resource utilization - Better public service - More timely information - Improved organizational planning - Increased organizational flexibility - Availability of new, better or more information - Ability to investigate an increased number of alternatives - Faster decision-making - Promotion of organizational learning and understanding - Better network and system interoperability - Better information connectivity - Improved IT response time to user requests - Expandability of standards-based systems - Greater access to agency information - Legislative and regulatory compliance

Online Excel spreadsheets are available at http://www.dis.wa.gov/portfolio/CBAmodel_0003011.xls and guide the preparation of information and provide the calculations needed for a valid cost-benefit analysis.

Risk Assessment Tools

Risk relates to the probability of success or failure of an action. Portfolio management focuses on five areas of risks to be considered in making IT investment decisions. These include:

APPENDIX A: IT Planning and Assessment Guidelines

- Strategic Risk — The degree to which the proposed investment will align with the agency's strategic direction and integrate into the existing business.
- Financial Risk — The probability that the agency will be able to secure funding for the entire project life cycle and that the project will deliver on the proposed financial benefits.
- Capability or Project Management Risk — The probability that the agency has the project management capability needed to successfully implement the investment, including a realistic timeframe, sufficient resources, necessary skill levels, and a sound business approach.
- Technology Risk — The degree to which the investment must rely on new, untested, or outdated technologies, including hardware, software, and networks.
- Organizational Impact or Operational Risk — The amount of change needed within the agency to benefit from the new investment, as well as the effort required to continue program operations once the investment is implemented.

Assessing risk for a proposed new investment must be based upon the best information available at the time of the assessment and the judgment of the project planners. During the early stages of investment analysis, sufficient information for a thorough risk assessment may not be available. Therefore, risk assessment should be repeated at major milestones in the investment planning and project development sequence to assure that risks are within reasonable limits and an appropriate risk mitigation plan has been developed.

Many risk assessment methods employ survey instruments that ask affected program, financial, and technology managers, and system users to independently respond to questions designed to measure risk in the five areas. By involving a cross section of affected parties a broad perspective of potential risk is obtained.

Measuring the Success of the Portfolio Management Approach

Benchmarks that measure the successful implementation of portfolio management and establish the positive impacts expected from portfolio management approaches include the following:

- All required elements are included in the portfolio document.
  - Use checklist to measure level of compliance
- Technology investments are demonstrably linked with the Business Strategic Plan
  - Develop questionnaire to specify how projects support objectives and strategies
- The agency assesses, manages, and mitigates risk using proven risk identification and mitigation tools
  - Evaluate by percentage of agency projects utilizing continuous risk management tools, track trend of issues resolved that presented need for corrective action
- The agency uses appropriate project management techniques
  - Develop questionnaire to evaluate usage, specify how Capability
  - Maturity Model level 2 Key Process Areas are satisfied
- The agency executive(s) support the portfolio because they have become more involved in IT policy and investment decisions
  - Measures can be changes in amount of time executives spend with IT managers, changes in dollars committed to improve processes
- The agency investment policy is demonstrably improved as a result of portfolio analysis

- Develop questionnaire, identify what savings have been achieved as a result of the analysis
- The amount of defect densities, schedule slips, and cost overruns have been significantly reduced, as well as the number, size, and frequency of IT project failures, since the portfolio requirements have been implemented
    - Measure change in all areas over time

Appendix B: Assessment Tools

Information Economics

Information economics provides a means to analyze and select technology investments. Information economics examines investments from both the perspectives of the business and technology domains. Examined in this method include the following:

Business domain factors:

- Return on investment (ROI) assesses the costs and benefits of a technology investment on other departments of the agency

- Strategic match (SM) assesses the degree to which the proposed project corresponds to established agency strategic goals. Projects that are an essential part of the corporate strategy receive a higher score than those that are not

- Competitive advantage (CA) assesses the degree to which projects create new business opportunities, facilitate business transformation, and improve agency's reputation or image

- Management information (MI) assesses a project's contribution to management's need for information about core activities that involve the direct realization of the mission versus support activities

- Legislative implementation (LI) assesses the degree to which the project implements legislation, executive orders and regulations

- Organizational risk (OR) assesses the degree to which an information system project depends on new or untested corporate skill, management capabilities and experience. Organizational risk focuses on the extent to which the organization is capable of carrying out the changes required by the project from both user and business perspectives.

Technology domain factors:

- Strategic architecture (SA) assesses the degree to which the proposed project fits into the overall information systems direction and conforms to open-systems standards

- Definitional uncertainty (DU) is a negatively weighted factor that assesses the degree of specificity of the user objectives, as communicated to the information systems project staff. Large and complex projects that entail extensive software development or require many years to deliver have higher risks compared to those projects segmented into modules with near-term objectives.

- Technical uncertainty (TU) assesses a project's dependence on new or untried technologies

Infrastructure risk (IR) assesses the degree to which the entire technology organization is both required to support the project, and prepared to do so. It assesses the environment, such as data administration, communications and distributed systems. A project requiring the support of many functional areas is inherently more complex and difficult to manage.

To evaluate each project, the portfolio planning team assigns a score ranging from zero to five for each domain factor and a corresponding weighting factor of zero to ten. The sum of the value factor scores multiplied by the factor weights constitutes the project value. The sum of the risk factor scores multiplied by the factor weights constitutes the project risks. In the example below, the total value score is 66. (ROI + SM + CA + MI + LI + OR = value). Risk score is 27. (SA + DU + TU + IR = risk)

APPENDIX B: Assessment Tools

	Business Domain						Technology Domain				Project Score	
Factor	ROI	SM	CA	MI	LI	OR	SA	DU	TU	IR	Value	Risk
Score	4	2	0	4	0	3	4	2	1	3		
Weight	10	5	0	2	1	5	2	2	2	2	66	27

In this hypothetical example, the planning team placed the highest weight, 10, on ROI; and 5, or half the importance of ROI, on SM. They also rated the project high (4) on ROI because the project projected high labor savings. However on strategic match, the team assigned a score of 2 because it did not contribute significantly to the organizational goals. With respect to organizational risk, the team assigned a score of 3 because the operating division did not make adequate plans to integrate the new project into its operations. For each factor, the planning team sets a weight and assigns a score. In this hypothetical example, the total value score is 66 and risk score is 27. Applying this method to all proposed new projects, selection would be based on those receiving the highest overall value and risk scores.

Federal Assessment Model

The federal model weighs costs, benefits and risks for proposed projects and scores them based on five categories: linkage to the business plan, mission effectiveness, organizational impact, risk, and benefit cost ratio. A total of 100 points are possible in the example. A range of points can be assigned depending on the relative value of the project in relationship to the category. In the example below, "link to business plan" is assigned a total of 25 points. Each project is scored from 0-25 depending upon the judgment of the portfolio steering committee (or other group of senior managers) rating proposed new investments or assessing existing ones.

Definitions of the categories and scoring criteria are provided below.

Example of Ranking List of Technology Investments

Project name	Estimated project cost	Link to business plan 25 pts.	Mission effective-ness 20 pts.	Organization Impact 10 pts.	Risk 20 pts.	Benefit-Cost Ratio 25 pts.	Total Score 100 pts.
Proj A	800K	23	18	8	18	20	87
Proj B	620K	23	15	9	16	15	77
Proj C	582K	18	14	7	14	15	68
Proj D	500K	16	16	7	16	10	65
Proj E	1698K	15	18	6	9	15	63

APPENDIX B: Assessment Tools

Scoring Criteria

Each factor is assigned a maximum number of points to be awarded to projects that most closely meet the criteria. Scoring can vary from zero to the maximum allowed for each factor. Some of the examples give specific guidance in the allocation for points.

Linkage to Business Plan *(*25 pts.*)* The strength of linkage of the investment to the business plan. Scoring is based on documentation of need for the investment.

Business Model (7 pts. max.) Assess the degree of alignment with the business plan/priorities. Example scores:

Zero pts.: project does not support agency products/services or processes

1-4 pts.: project is specifically mentioned in business plan and supports agency products/services or processes

5-7 pts.: project is specifically mentioned in business plan and supports products/services or processes identified in the plan and the project has been coordinated with all organizational entities impacted by the project

Level of Interest (12 pts. max.) Assess the level of interest by agency senior managers, ISB and/or the legislature. Example scores:

Zero pts.: no expressed support for this project

12 pts.: strongly supported by senior managers, agency head, ISB and/or legislature

Business Process Redesign (6 pts. max.) Assess the degree the project enables the organization to do business in a better way. Example scores:

Zero pts.: automates an existing business process with little improvement of the process

6 pts.: enables significant improvement in way business is conducted.

Mission Effectiveness (20 pts.) Measure the impact of the system on both external and internal customers. Measure the project's ability to improve the performance of support or operational programs. Quantify the improvement if possible.

Improve Internal Program Services (10 pts. max.) Assess the expected improvement in service to internal customers. Example scores:

Zero pts.: does not appear to solve a problem defined by an internal customer. Little improvement in important customer service criteria, such as timeliness, quality, or availability is expected.

10 pts.: significant improvement expected in areas such as timeliness, quality or availability, and improvement is quantified. Improvement also addresses an important problem or area of service improvement defined by the customer.

Improved Service to the Public (10 pts. max.) Assess the expected improvement in service to the public. Example scores:

Zero pts.: project appears to provide little or no direct improvement in service to the public. Project makes a small improvement in timeliness, quality, or availability, but no documented need for such improvement is quantified.

10 pts.: project significantly improves service to the public in a mission where need is demonstrated or provides a new type of service to meet changing demands. Improvement is quantified.

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Organizational Impact (10 pts.) Measures the impact on technology personnel.

Personnel and Training (3 pts. max.) Assess the impact of the system on the knowledge, skill, and training of technology personnel. Example scores:

Zero pts.: project likely to require significant new skills to operate and support and project does not appear to mitigate this impact through appropriate training, or other personnel related remedies.

3 pts.: project is an improvement to an existing system and will require relatively little new skill and/or knowledge to operate or support. If project is new, it will introduce valuable new skills and knowledge to the organization and the project will mitigate any adverse impact through appropriate training, or other personnel related remedies.

Scope of Beneficiaries (4 pts. max.) Assess a higher score, the broader the scope of beneficiaries. Example scores:

Zero pts.: limited number of beneficiaries. Project will be used by only one office in the agency. Not a cross-functional system.

4 pts.: project is cross-functional and serves a number of offices, areas, and/or districts. Large number of organizational units will use project. Project will be used by the public.

Quality of Work Life (3 pts. max.) Measures the improvement in quality of work life expected. Example scores:

Zero pts.: little if any positive impact on the quality of work life. Project may increase work required.

3 pts.: positive contribution to the quality of work life. For example, project allows job to be done much faster and job satisfaction is expected to increase.

Risk (20 pts.) Measures the risk resulting from uncertainty, with a project that is totally lacking in risk scored 20. (The more risk carried by the project, the lower the risk score.)

Schedule Risk (4 pts. max.) Evaluate the probability this project can be completed on schedule. Score from 0-4 pts. based on where the project best fits on a scale from very risky to low risk. Example scores:

Zero pts.: very risky. Execution of project is likely to slip; acquisition strategy indicates contract may not be awarded on time to meet schedule or obligate budget year dollars. Project is understaffed and/or inexperienced and project is complex. Accelerated project schedule was imposed rather than developed from project planning.

4 pts.: low risk. Execution of project is not likely to slip; acquisition strategy should result in timely contract award such that funds can be obligated as planned. Adequate project staff is available and has requisite experience to execute the project; project complexity is documented. Project schedule has not been accelerated to meet artificial deadlines.

Cost Sensitivity (4 pts. max.) Evaluate the sensitivity or quality of the cost estimates. Example scores:

Zero pts.: very risky. Project is complex and cost estimates appear to require additional refinement. Software development is required and represents more than 50 percent of the predicted cost.

4 pts.: low risk. Cost estimates are well supported. Little software development required or a software cost estimating technique has been used to produce a reasonably reliable cost estimate.

APPENDIX B: Assessment Tools

Technical Risk (4 pts. max.) Evaluate the risk to complete the system from a technical point of view. Example scores:

Zero pts.: very risky. Hardware and/or software solution does not conform to agency's technical architecture and/or there is little or no experience with this technology in the agency. Hardware, software, or support is not now available commercially and requires development specifically for the agency.

4 pts.: low risk. Planned hardware and software conform to organization's technical architecture and there is successful experience in using this technology in the agency. Hardware, software, and support are commercially available and do not have to be developed for use in the agency.

Organizational Risk (4 pts. max.) Assess the risk that the proposed system will fail due to organizational disruption. Example scores:

Zero points: very risky. Project implementation requires significant organizational change, process redesign, and/or people's jobs to be done differently and the project is not proactively seeking to mitigate this risk.

4 pts.: low risk. System has little impact on the organization or the project is mitigating this risk through training and/or investment in a business process redesign effort that builds commitment to the project.

Risk of Not Doing It (4 pts. max.) Assess the risk to the organization of not proceeding with project. Example scores:

Zero pts.: low risk. Project is incremental improvement to existing system. Impact of this project can be achieved by other means.

4 pts.: very risky. The project is important to provide future opportunities for cost savings and/or improved customer service. If system is not built or delayed for a year or more, the agency will probably fail to meet customer demands in the near future.

Benefit-Cost Ratio (25 pts.) Measures the value of the system in dollar terms. This ratio is developed using standard benefit-cost methods. Alternative methods to benefit-cost analysis include return of investment or net present value calculations. If using benefit-cost analysis, the higher the ratio, the better the score.

• Zero pts.	benefit-cost ratio less than one (costs exceed the benefits)
• 1-5 pts.	low benefit-cost ratio
• 5-20 pts.	medium benefit-cost ratio
• 20-25 pts.	high benefit-cost

Balanced Scorecard

The balanced scorecard is a result-oriented planning and assessment approach that integrates the business, technology and financial planning processes. The balanced scorecard translates business strategies into technology objectives, measures and performance targets from the perspectives of the financial, internal business processes, customer, and learning and growth interests of the agency. Proposed new investments are assessed to determine which have the greatest value for achieving the objectives.

APPENDIX B: Assessment Tools

The balanced scorecard addresses how well technology is:

- Achieving the strategic needs of the agency as a whole
- Satisfying the needs of individual customers with technology products and services
- Delivering quality products and services (effectiveness and efficiency of technology organization)
- Accomplishing ongoing technology innovation and learning

Objectives and corresponding performance measures are developed from four perspectives. By examining the resulting performance data, decision-makers can determine which projects have the greatest value for the agency.

Achieving the Strategic Needs of the Agency as a Whole

In the chart below the performance of the technology portfolio is assessed for its contribution to the agency's strategic business plan.

Objectives	Sample Measures
Linkage to business mission, goals, objectives	- percent mission improvements (costs, time, quality, quantity) attributable to technology solutions and services - percent planned technology benefits projected vs. realized
Portfolio analysis and management	- percent technology portfolio assessed and disposed - percent applications retirement plan achieved - percent reusability of core applications - percent new technology investments vs. total technology spending
Financial and investment performance	- return on investment, net present value - technology budget as percentage of operational budget compared to other agencies or the state as a whole
Technology resource use	- percent shared/consolidated resources - percent cross-unit shared databases and applications - percent hardware/software with interoperability capabilities

Agencies using these approaches believe consistency requires choosing an approach and conforming to it over time.

Satisfying the Needs of Customers

This perspective is designed to assess the impact technology has on customer satisfaction. Some questions that can help to define the objectives include:

- How well are the business and technology domains integrated in the portfolio planning and selection process?
- Are customers satisfied with technology products and services?
- Are technology resources supporting major process improvement efforts?

Objectives	Sample Measures
Customer/technology partnership	• percent projects using integrated project teams • percent joint technology customer/supplier service level agreements
Customer satisfaction	• percent customers satisfied with technology product delivery • percent customers satisfied with technology problem resolution • percent customers satisfied with technology maintenance and support • percent customers satisfied with technology training • percent products launched on time • percent service level agreements met
Business process improvement	• percent technology solutions supporting process improvement projects • percent users covered by training to use new technology solutions • percent new users able to use applications unaided after initial training

Delivering Quality Products

This perspective is designed to assess the ability of the technology organization to deliver quality products and services. Some questions to consider in developing the objectives:

• Are quality products delivered within general industry standards?

• Are quality products being delivered using acceptable methods and tools?

• Is our infrastructure providing reliable support for business needs?

• Is the enterprise architecture being maintained and sustained?

Objectives	Sample Measures
Applications, development and maintenance	• percent decrease in application software failures, problems • average time to resolve critical defects • cycle time for development
Project performance	• percent projects on time, on budget • percent projects meeting functionality requirements • percent projects using standard methodology for systems analysis and design
Infrastructure availability	• percent computer availability • percent communications availability • percent applications availability • on-line system availability
Architecture standards compliance	• number of variations from standards detected by review and audit per year • percent increase in systems using architecture • percent staff trained in relevant standards

Innovation and Learning

This perspective assesses the technology organization's ability to deliver quality results. Some questions to ask in developing the objectives:

• Do we have the right skills and qualified staff to ensure quality results?

• Are we tracking the development of new technology important to our business needs?

• Are we using recognized approaches and methods for building and managing technology projects?

APPENDIX B: Assessment Tools

- Are we providing our staff the proper tools, training, and incentives to perform their tasks?

Objectives	Sample Measures
Workforce competency and development	• percent staff trained in use of new technologies • percent staff professionally certified • percent technology management staff trained in management skills • percent technology budget allocated to training and staff development
Advanced technology use	• percent employees skilled in advanced technology applications • number of dollars available to support advanced technology skill development
Methodology currency	• currency of application development methods in use • percent employees skilled in advanced application development methods • percent projects developed using recognized methods and tools
Employee satisfaction and retention	• percent employee satisfaction with the capability of the existing technical and operating environment to support mission • percent employee turnover by function

Appendix A: Agency Portfolio Overview

A. Purpose
Describe the purpose or value of the portfolio to your executive management in managing IT as a vital agency resource.

B. Convergence of Business Mission and IT Vision
[Links IT to the strategic business plan.]

Describe your agency's mission and its primary business objectives. What business is your agency in? What legislative mandates does your agency have? What is your agency's vision to accomplish its mission? How well do your current IT investments support the business objectives? How important is IT in helping you meet your agency's business goals? What future investments or changes in investment strategy need to be made (if any) in order to strengthen IT support of the agency's mission?

C. IT Plans, Proposals, and Acquisitions Process
The agency should describe the following:
1. The process for reviewing its IT plans, proposals, and acquisitions from a financial and management perspective as part of the budget process.
2. Its acquisition process and how the process provides competition and accountability for purchases and expenditures and adheres to the provisions of the Information Technology Investment Policy.
3. Awareness and adherence to state technical standards for IT, and any exceptions to or deviations from the standards.
4. Awareness and adherence to state complaint and protest procedures as outlined in the IT Investment Policy and Standards documents.

D. Overview of Infrastructure
[High level view of data from Agency Technology Infrastructure and Technology Investment/Project Summaries combined with a summary of staff resources.]

Provide a high level, enterprise-wide view of the current IT investment (hardware, software, networks, and critical applications), and the schematic of IT structures (locations/nodes, physical facilities, networks, etc.). Who is doing the work (number of people, Full-Time Equivalents, etc.) and how (copy of IT organizational chart – centralized vs. decentralized)?

E. Analysis
[Use data from Agency Technology Infrastructure and Technology Investment/Project Summaries.]

Describe as a percentage (and/or represent graphically) current and projected allocation of resources by category or functional unit. Examples: application development, infrastructure development, major systems, maintenance costs, and/or functional distinctions that reflect the

agency's structure and business model. The term "resources" includes labor, contractual services, infrastructure, and overhead, measured in dollars.

F. Challenges and Opportunities

Given the state of technology used by agencies today, what challenges does your agency face? What does your agency need to succeed? Are there opportunities for data or resource sharing that could be explored? How can your agency contribute to achieving the state's IT plan?

G. Solutions: Current and Future IT Investments

[Narrative overview of Technology Investment/Project Summaries and Planned Investments/Projects, tied back to Agency Strategic Business Plan.]

In addressing this subject, consider the following: How can your agency apply IT to achieve its business objectives now and in the future? What does success look like? How will the challenges be addressed? Provide an overview of current "In-development" projects (number and nature). Describe planned projects in terms of: a) meeting business objectives; b) impact on existing investments (changes to applications, networks, etc.); c) consistency with state's IT strategic plan; and d) priority of project or cluster of projects, and justification of this priority.

H. Prioritization Process

Describe your agency's management process for prioritizing IT resources.

Appendix B - Agency Technology Infrastructure

The information described in the following sub-sections **must** be provided to OCIO using the web ePortfolio application.

Section 3
A. Current and Projected IT Budget
B. IT Personnel
C. Personal and Workgroup Computing
D. Geographic Information Systems (GIS) Resources

For access to and assistance in using the web application, contact your agency's OCIO IT Consultant.

A. Current and Projected IT Budget

IT expenses should reflect the entire agency, not just the IT division.

Provide budget details in the following categories (Descriptions of each category are included below):

Reporting Period	Total Agency IT Budget	Hardware Purchase and/or Lease	Software Purchase and/or Lease	H/W Repairs and Maintenance	S/W Enhancements and Maintenance
Indicate Current Fiscal Year	(Projected)	(Projected)	(Projected)	(Projected)	(Projected)
Indicate Current Fiscal Year	(Actuals)	(Actuals)	(Actuals)	(Actuals)	(Actuals)
Indicate Next Fiscal Year	(Projected)	(Projected)	(Projected)	(Projected)	(Projected)

Reporting Period	Telecommunications	Data Processing Services (e.g. CTS services)	If applicable, list & identify other major IT expenses here
Indicate Current Fiscal Year	(Projected)	(Projected)	(Projected)
Indicated Current Fiscal Year	(Actuals)	(Actuals)	(Actuals)
Indicated Next Fiscal Year	(Projected)	(Projected)	(Projected)

APPENDIX B: Agency Technology Infrastructure

B. IT Personnel

Reporting Period	Total Agency IT FTEs (include WMS positions)	Salaries and Benefits	Personal and Purchased Services	Professional Development of IT Staff
Indicate Current Fiscal Year	(Projected)	(Projected)	(Projected)	(Projected)
Indicate Current Fiscal Year	(Actuals)	(Actuals)	(Actuals)	(Actuals)
Next Fiscal Year	(Projected)	(Projected)	(Projected)	(Projected)

Category Descriptions

Hardware purchase and/or lease - Purchase or lease payments for machines, devices, and transmission facilities used in information processing, such as servers, routers, personal computers, laptops, terminals, personal digital assistants, printers, and cables. Do not include multi-purpose machines that are predominately used as copiers.

Software purchase and/or lease - Purchase or lease payments for the object code version of computer programs and any related documentation, and/or licenses for use of software products (e.g. Microsoft Select Agreement). Software also means the source code version, where provided by vendor.

Hardware repairs and maintenance - Payments made to external providers for repairs, preventive maintenance, and/or support for hardware.

Software enhancements and maintenance - Payments made to external providers for enhancements, maintenance, and/or support for software.

Telecommunications - Telecommunications services and equipment for voice, including telephones and local service (e.g. Centrex, PBX, voice mail, IVR) and long distance (SCAN, 800 number), wireless (cellular phones, pagers); videoconferencing services and equipment; and telecommunications services and equipment for data (e.g. modems, routers, gateways, transport, Internet).

Data processing/information technology services - Payments made to a third party (e.g. CTS) for services that assist the agency in the electronic capture, collection, storage, manipulation, transmission, retrieval, presentation, and distribution of information in the form of data, text, or image, and/or facilities management of agency equipment.

APPENDIX B: Agency Technology Infrastructure

<u>Other</u> - IT resources or special projects that may not be captured in the categories listed here.

<u>Agency IT FTE</u> - Total number of staff in IT job classifications. Include other staff (e.g. WMS) whose responsibilities are mostly IT-related.

<u>Salaries and benefits</u> - Total salaries and benefits for agency IT FTEs.

<u>Personal and Purchased Services</u> - Personal Services are professional or other technical expertise provided by a consultant to accomplish a specific study, project, task, or other work statement. Purchased Services are provided by a vendor to accomplish routine, continuing, and necessary functions such as data entry, scanning and indexing, programming services and analysis. Do not include hardware and software repairs and maintenance in this category.

<u>Technical and professional development of IT staff</u> - Tuition/fees, travel, per diem, and materials for classes, seminars, conferences, and online courses that contribute to the development of agency IT personnel.

C. Personal and Workgroup Computing

Provide details in the following categories (Descriptions of each category are included below):

Indicate the fiscal year being reported: FY_____

Personal Computers

1. Total Agency FTEs	2. Total number of PCs (exclude servers)	3. Planned number of PCs replacements next fiscal year	4. Agency intended refresh cycle in months	5. PCs donated to schools in <u>last 12</u> months

Servers

6. Total number of servers	7. Number of servers to be replaced next fiscal year	8. Number of servers planned to be added in next fiscal year	9. Factors driving server acquisition strategy

Network Connectivity	
10. % agency staff with Inside WA (intranet) access	11. Agency primary network operating system
Desktop Office Suite	
12. Primary desktop office product suite?	13. If not XML enabled do you plan to be within 12 months? (yes/no)

APPENDIX B: Agency Technology Infrastructure

Category Descriptions

Personal Computers
1. What is the total agency FTE count?
2. How many personal computers (PCs) does the agency currently have (excluding servers)?
3. How many of these PCs does the agency plan on replacing in the next fiscal year?
4. If your agency has an established PC refresh cycle, what is the length of that cycle?
5. If your agency donates used PCs to schools, approximately how many were donated in the past 12 months?

Servers
6. How many servers does your agency currently lease or own?
7. How many of these current servers do you plan on replacing during the next fiscal year?
8. How many additional servers do you plan to purchase or lease during the next fiscal year?
9. Which of the following are driving your server acquisition strategy? (pick one or more)
   - Server consolidation
   - Increased application utilization
   - New application deployment
   - Disaster Recovery/Redundancy
   - Other

Networks
10. What percent of agency staff have access to the state intranet portal (Inside WA)?
11. What is your agency's primary network operating system?

Desktop Office Suite
12. What office product suite does your agency use as its primary desktop tool?
13. If desktop office suite is not XML enabled, do you plan on migrating to a version that is within the coming biennium? (yes/no)

D. Geographic Information Systems (GIS) Resources
Provide details in the following categories (Descriptions of each category are included below):

Indicate the fiscal year being reported: FY_____

	1. Number of GIS Staff (FTEs)	Indicate here if included in 3.B.1 "Total Agency IT FTEs"
Central Support		(yes/no)
Program Area Support		(yes/no)

APPENDIX B: Agency Technology Infrastructure

	2. GIS Software
Vendor Name	
Product Name	
Number of Licenses	

	3. Hardware
Make/Model	
How Many	
Is this equipment included in Section 3C.2 "Total Number of PCs?	(yes/no)
Is this equipment included in Section 3C.6 "Total Number of Servers?	(yes/no)

	4. Major GIS Application(s)
Application Name / Description	

	1. GIS Database(s) Environment
Vendor Name	
Number of applications	

	2. Critical GIS Datasets
Name(s)	

Category Descriptions

Many agencies have a significant investment in GIS technology or rely on the technology to meet mission critical information requirements. If your agency uses GIS in this context, please respond to the following.

1. GIS Staffing (FTEs) - (Please indicate if these FTEs are reflected in Section 3.B.1 "Total Agency IT FTEs")

APPENDIX B: Agency Technology Infrastructure

- Centralized support - indicate FTEs currently devoted to a corporate or centralized GIS support effort.
- Program area support - indicate FTEs currently attached to program areas for GIS support.

2. Software - identify GIS software packages and number of licenses currently maintained for each.
3. Hardware - identify hardware platforms used to support GIS.
4. Major applications - identify and provide brief description of major/mission critical GIS applications.
5. GIS Database Environment - identify vendor databases (e.g. ARC SDE, Oracle, etc.) used to support mission critical GIS effort and indicate number of GIS application supported by each database.
6. Critical GIS Datasets - identify GIS datasets that are critical to support of agency's mission.

The information described in the following sub-sections is **not** provided to OCIO using the web ePortfolio application.

Section 3:
E. Security and Disaster Recovery/Business Resumption Plans
F. Public Access
G. Application (Systems) Information
H. Database Information

E. Security and Disaster Recovery/Business Resumption Plans

Agency heads are responsible for the oversight of their respective agency's Information Technology (IT) security and disaster recovery and will confirm in writing that the agency is in compliance with the IT Security and Disaster Recovery/Business Resumption Policies and Standards.

- Security - The annual security verification letter due August 31 per the IT Security Policy and Standards must be included in Annual Technology Investment and Project Reviews and submitted to the Technology Services Board. The verification indicates review and acceptance of agency security processes, procedures and practices, as well as updates to them since the last review.
- Disaster Recovery/Business Resumption - The annual disaster recovery/business resumption verification letter due August 31 must be included in Annual Technology Investment and Project Reviews and submitted to the Technology Services Board. The verification indicates review and acceptance of agency disaster recovery/business resumption processes, procedures, and practices as well as updates to them since the last review.

These certification letters may be submitted as one document.

The Security Program and Disaster Recovery/Business Resumption Plans are included in the portfolio by reference. Agencies are not required to submit them to OCIO. Instead, agencies will indicate the physical location of the unique authoritative copies of the plans and indicate

contact information for the steward of those plans (and stipulate that they were developed/ maintained in accordance with published OCIO policy.)

F. Public Access

Describe the agency's "progress toward [providing] electronic access to public information and enabling citizens to have two-way interaction …for obtaining information and services…" (RCW 43.105.270).

G. Application (Systems) Information

This section is useful in providing information about the production applications existing at an agency. For the purpose of the portfolio, an application or system is a group of related automated procedures that support a business objective.

In this section, provide information for each mission critical IT application.

Mission critical applications are high risk application systems. With a mission critical application, even short-term loss of the functionality provided by the application would have significant negative impact on:

- The health or safety of the public or state workers;
- Income maintenance for citizens or government employees;
- Payments to vendors for goods and services; or
- The legal or fiscal integrity of state operations.

In addition to mission critical applications, agencies are encouraged to include information in their portfolios about any application deemed important to the agency or to other stakeholders. Agencies are also encouraged to include supplemental information in their portfolios if useful for managing or reporting.

The following list, while not exhaustive nor mandatory, is encouraged. Agencies may indicate in their portfolios if they do not currently capture an element listed below:

1. Provide name of application.
2. Provide name and title of application owner (e.g. IS Mgr./owner).
3. Provide name and title of customer/business area owner.
4. Indicate type of application (accounting, human resource, program or agency specific such as claims management, tax collection, etc.)
5. Provide a brief description of the application.
6. Provide an estimate of the number of users.
7. Indicate which agency strategies, programs, and business processes are supported by the application.
8. Indicate when the application was originally implemented.
9. If the application has been significantly modified, indicate when.
10. Indicate how many technical staff FTEs are required to maintain and support the application.

11.   Indicate if replacement or major modification of the application is planned. If so, briefly describe the modification and indicate its planned start date.

12.   Indicate ownership of application (owned by agency, leased from vendor, owned and operated by vendor)

13.   Provide application size and technical characteristics (number of lines of code or function points, primary technology platform, site of platform (agency, OCIO, etc.), operating system, primary language (COBOL, Natural, etc.), and database management system used.

14.   List interfaces to other major systems.

It is important for executive management of the agency to understand the current application portfolio in order to manage current activities and plan for the future. Agencies are encouraged to use the application information to assist with the management of IT.

Suggested summary reports to include in the portfolio include:
- Statistics comparing applications from year to year
- Age of applications
- Commercial applications supported
- Number of platforms used by applications
- Operating systems in use
- Languages used by applications
- Database types used
- Applications by customer/business area
- Applications by manager/owner
- Number of FTEs providing maintenance and support
- Estimated cost of maintenance & support

H. Database Information

The purpose of this section is to provide information about existing databases in the agency. Provide the following information for each mission critical database.

Mission critical databases support high risk application systems. With a mission critical database, even short-term loss of the functionality provided by the application and database would have significant negative impact on:
- The health or safety of the public or state workers;
- Income maintenance for citizens or government employees,
- Payments to vendors for goods and services; or
- The legal or fiscal integrity of state operations.

In addition to mission critical databases, agencies are encouraged to include information in their portfolios about any database deemed important to the agency or to other stakeholders. Agencies are also encouraged to include supplemental information in their portfolios if useful for managing or reporting. The following list, while not exhaustive nor mandatory, is encouraged. Agencies may indicate in their portfolios if they do not currently capture an element listed below.

APPENDIX B: Agency Technology Infrastructure

1. Database commercial name (DB2, ADABAS, Oracle, etc.)
2. List of applications supported
3. High-level description (what type of data does it collect)
4. Location (Agency, OCIO, vendor facility)
5. Ownership of database (e.g. IS Mgr./owner).
6. Size of database in terms of data storage requirements
7. Number of records in the database
8. Frequency with which records are added, modified, and deleted
9. Backup frequency

It is important for executive management of the agency to understand the current database portfolio in order to manage current activities and plan for the future. Agencies are encouraged to use the database information to assist with the management of IT. <u>Suggested</u> summary reports to include in the portfolio include:

•   Statistics comparing databases from year to year

•   Age of databases

•   Number of platforms

•   Database by manager/owner

•   Number of FTEs providing maintenance and support

•   Estimated cost of maintenance & support

Appendix C - Technology Investment/Project Summaries

Provide a summary of each current technology investment.

Title	Description/Purpose	Cost Estimate	FTEs	Schedule	Scope	Business Driver/Strategy Supported	Executive Sponsor	Project Manager
Project, investment, acquisition name (ranked by priority)	A brief, non-technical description of the purpose of the project, application or asset.	Total project costs including development and implementation, by phase, as appropriate.	Include both state and contractors, reported separately.	Start and completion dates, by phase, as appropriate.	Organizational context (work group, agency-wide, statewide). Related functional areas outside the project scope. Risk (low, medium, high). Impact on, or relationship to, statewide infrastructure.	Major business functions or processes supported. Measurable benefits (and/or mandated by statute. Cite RCW).	Name Title Phone E-mail	Name Title Phone E-mail

Appendix D - Planned Investments/Projects

Provide a summary of each planned or proposed technology investment.

Title	Description/ Purpose	Cost Estimate	FTEs	Schedule	Impact on existing investments	Scope	Business Driver/ Strategy Supported	Executive Sponsor	Project Manager
Project, investment, acquisition name (ranked by priority).	A brief, non-technical description of the purpose of the project, application or asset.	Total project costs including development and implementation, by phase as appropriate	Include both state and contractors, reported separately.	Start and completion dates, by phase, as appropriate.	Changes to agency applications, and systems. Impact on, or relationship to, statewide infrastructure.	Organizational context (work group, agency-wide, statewide). Related functional areas outside the project scope. Risk (low, medium, high).	Major business functions or processes supported. The measurable results that will be achieved as a result of completing this project (and/or mandated by statute. Cite RCW). Summary of tangible and intangible benefits for the project.	Name Title Phone E-mail	Name Title Phone E-mail

Appendix E - Annual Technology Investment and Project Reviews

Post Implementation Review

The post implementation review must document practices and procedures that lead to project successes and make recommendations for applying them to similar future projects, and make recommendations for improving the planning, management, and quality control of future, similar investments or projects. It should assess the causes and impacts of any significant reductions in benefits, increases in one-time or continuing costs, problems with project management, or increases in project risk during the course of the project.

Purpose

The major purpose of a Post Implementation Review (PIR) is to determine if the expectations established for an information technology system were met. The PIR essentially documents the comparison between the *actual* results of a system and the *estimates* contained in the acquisition plan or project agreement. It also establishes a baseline for similar acquisitions or projects to assist in shaping more accurate estimates for future information technology planning so that state agencies can benefit from experience. Ideally, the PIR should be conducted by an objective third party such as a private contractor, the State Auditor's Office, internal auditor, or other neutral party.

Scope

The PIR complements previous project documentation. It is not a requirement to provide the level of detail which may be found in the agency's project definitions, decisions packages, conceptual/detailed design, and feasibility study. What is sufficient – and necessary – is the level of detail that will enable meaningful analysis of events, and conclusions to be drawn regarding those events.

The comparisons of interest in a PIR are:

Estimated and actual schedule;

Estimated and actual costs;

Expected and actual functionality;

Projected and actual benefits.

Guidance

It is vital that the PIR include what is perceived to have occurred, and why. However, it is recognized that not all events are explainable in terms of measurable "cause and effect" rationale, yet there may be "lessons learned" in the perception of events even though the "measurement" cannot be ascertained. Also, there can be valid reasons why costs – for example – have increased, such as an expansion of the system's original functional requirements or an increase in technical staffing.

"Knowns" (e.g., acquisition costs, personnel, schedule) are traditionally tracked because the information is available. However, a particular project's "unknowns" (during development) can create implementation risks, and it is these unknowns which can in hindsight offer valuable lessons for project lifecycle planning (e.g., additional functionality added, training, maintenance of new code, unforeseen additional personnel or technical skills needed.)

Appendix E: Annual Technology Investment and Project Reviews

In addition to a value expressing differences such as "cost was X dollars over estimates," it is also useful to express differences in terms of percentages when comparing estimates with actuals since it lends insight into the project's complexity. For example, a greater percent difference – 10% above cost estimates – may be more acceptable for an innovative, higher-risk project than for a project with lower risk since the latter should have less uncertainty in performance information. The following are some points to consider when addressing schedule, costs, functionality, and benefits of the completed project.

a) Schedule: The PIR should describe the original and actual milestones, deliverables, products, or processes effected and the reasons for any significant differences. For example, the trade-off between elapsed time and the desire for rigorous functional requirements could affect critical paths and thus, delivery dates. If a project missed a schedule by two months, this information by itself is not sufficient for the PIR. Since a task that takes longer sometimes results in a better system, schedule aspects of the PIR must make clear whether schedule changes were due to engineering necessity, uncertainty, assumptions during estimation, or other reasons.

b) Costs: Project costs should be categorized to illustrate whether savings or overruns occurred as a result of software design, hardware changes, additional personnel, or other combination of factors. For example, the estimated (original) cost may be lower than the actual cost because the estimate did not include subsequent changes to the specifications. Or a particular technology did not turn out to be as mature as anticipated requiring other hardware or software solutions. What is important is to capture the reasons for differences between the estimated and actual costs, and what the specific cost categories were that contributed to the differences.

c) Functionality: The comparison between expected and actual functionality essentially addresses project technical feasibility in two ways: (a) does it meet specification, and (b) does it work satisfactorily?

Technical specifications are addressed via requirements analysis (during the project life cycle), and may be derived from agency, state, federal, and industry (de facto) standards. The PIR should address whether technical requirements were sufficient to fully realize the required – and desired – functionality of key hardware and software components of the system, and of the system as a whole. The point is to discuss whether the system works as *specified*.

The PIR should also address whether the system works as *intended* by management and/or users. If it does not, this may be due to insufficient requirements, engineering trade-off, cost, complexity of the technical problem, etc. These reasons need to be captured because they indicate that some technical specifications may need to be tightened, or that they need to be used in combination with other factors. Comments from system users are a critical part in establishing whether the system really works as intended: if there is no user support, the positive aspects of meeting specification are diluted.

d) Benefits: The benefits section is not a repetition of the agency's cost/benefit analysis. Since the project was funded through implementation, it is assumed that there were projected benefits. Rather, the PIR documents whether the projected benefits match the actual benefits as a result of the project's implementation. Benefits need not be defined in

terms of cost savings or cost avoidance. They may include "public good" (e.g., enhanced safety), increased agency throughput for workload, enhanced agency capability for additional responsibilities, future potential of the system or agency, consistency with the technical direction of the state, agency, and industry, or lessons learned by the agency in meeting its technical goals.

Sample Post Implementation Review (PIR) Table of Contents

Executive Summary
Background
Project Goals and Objectives
PIR Measurement Criteria
Estimated and Actual Schedule
Estimated and Actual Costs
Expected and Actual Functionality
Projected and Actual Benefit
Lessons Learned
Solicitation Process and Vendor Selection
Contract Negotiation and Management
Technology
Project Management
Communications Plan
Technical Design Specifications
Data Conversion
Testing
Training
Implementation
Production / Operations
Appendix
Final QA Report

Office of the Chief Information Officer (OCIO)	STANDARD NO. 112.10
	Managing Information Technology Portfolios Standards

Purpose: To provide specific direction for carrying out the Managing Information Technology Portfolios policy.	Effective Date: October 1, 2011 See Also: Appendix A Appendix D Appendix B Appendix E Appendix C Appendix F

STANDARDS

1. **The required content of each section below represents the minimum information that must be included in each agency's portfolio. Agency executives may choose to include additional information at their discretion.**

   1.1.   Agency Portfolio Overview

   1.1.1.   The Agency Portfolio Overview provides a high level description and analysis of the agency IT portfolio. The portfolio overview addresses the following topics: portfolio support of the agency's mission; summary of IT plans, proposals, and acquisition process; an enterprise view of information technology infrastructure; IT challenges and opportunities faced by the agency; high-level view of current and future IT investments; and a description of the agency's prioritization process for selecting IT projects. (see Appendix B for details)

   1.2.   Agency Strategic Business Plan

   1.2.1.   The Agency Strategic Business Plan is prepared in accordance with the biennial budget instruction issued by the Office of Financial Management (OFM). A copy of, or hyperlink to, that submittal will suffice to provide the data required in this section.

   Note: Agencies with separately elected officials are not required to prepare a Strategic Business Plan.

   - The Agency Strategic Business Plan helps ensure that current and proposed technology investments are aligned with the agency's vision for the future and directly support its business processes.

   - The summary information included in the plan duplicates the information that each agency must currently provide in conjunction with its biennial budget proposals.

   1.3.   Agency Technology Infrastructure

   1.3.1.   This information defines the current inventory of systems, defines their functionality, describes the architecture and provides the core of IT capacity in the current period.   It also addresses operating environment requirements including planning related to IT security and disaster recovery and business resumption.

   - An agency's technical infrastructure is a platform for future technology investments and a constraint limiting the investments that can be cost-

             effectively pursued. This section of the portfolio provides a convenient reference for executives engaged in planning and managing their agency's use of IT.

    1.3.2.   In addition to providing the infrastructure information described above, Agency Technology Infrastructure includes an inventory of specific components in the agency's IT infrastructure. The required inventory information is itemized in [Appendix C](#).

1.4.   Technology Investment/Project Summaries

    1.4.1.   The Technology Investment/Project Summaries are based on documentation routinely required for effective project management. The information is a summary of key information extracted from project documentation, including but not limited to project feasibility study reports, and project quality assurance plans.

    1.4.2.   Project managers are responsible for the project itself and for related documentation. Such documentation -- feasibility studies, investment plans, implementation plans, project plans, risk assessment and mitigation plans, quality assurance (QA) plans and project status reports, as appropriate -- are included in agency portfolios by reference. Agencies are not required to submit them with the portfolio. The portfolio model assumes that projects, investments, acquisitions and assets have current documentation available and accessible for use by agency executives, IT personnel, QA professionals, OCIO staff, and those acting on behalf of the ISB. This section also provides the opportunity to document formal project acceptance by key stakeholders.

    1.4.3.   The Technology Investment/Project Summaries information is comprised of a summary analysis of each current project and technology investment, including when applicable, information about web-based transactional applications, as required by the IT Security Policy and Standards.

    1.4.4.   The required information is itemized in Appendix D.

1.5.   Planned Investments/Projects

    1.5.1.   Planned Investments/Projects provides an opportunity for agency executives to view IT investment alternatives in context, rather than as isolated projects. The contents of the portfolio are drawn from documents that have already been created by each agency in conjunction with its regular management processes.

    1.5.2.   Each investment in IT must be viewed in relation to:

- Its impact on the business of the agency - as represented by the Agency Strategic Business Plan and included with the portfolio.

- Its impact on the agency's technical environment - the Agency Technical Infrastructure.

- Its priority as measured against current investments and other proposed investments, and other proposed investment included in the portfolio.

- The impact, if any, on the statewide IT infrastructure.

    1.5.3.   The Planned Projects/Investments information is comprised of a summary analysis of each project and proposed technology investment, including when applicable, information about web-based transactional applications, as required by the IT Security Policy and Standards.

       1.5.4.   The required information is itemized in Appendix E.

1.6.   Annual Technology Investment and Project Reviews

       1.6.1.   Annual Technology Investment and Project Reviews consists of a review and update of each ongoing level 2 and 3 investment or project, and a post-implementation review of any level 2 or 3 investment or project completed since the previous annual update. This information can also be considered the historical portion of the portfolio, and is the logical section for submitting copies of the required annual portfolio certification as well as security and disaster recovery certification letter(s) from the agency head.

       1.6.2.   The project review of each ongoing level 2 and 3 investment or project is performed as part of the annual update of the IT portfolio. The purpose of the review is to compare expectations for the investment or project as documented in the original investment analysis and project plan, and compare the assessment of project risk against the actual course and results of the project. The review should also reflect the status of the project(s) prior to undertaking the annual portfolio update.

       1.6.3.   For projects that have completed since the last annual portfolio update, the agency must include a post-implementation review. The review should assess the causes and impacts of any significant reductions in benefits, increases in one-time or continuing costs, problems with project management, or increases in project risk during the course of the project. It must document practices and procedures that lead to project successes and make recommendations for applying them to similar future projects, and make recommendations for improving the planning, management, and quality control of future, similar investments or projects.

       1.6.4.   In addition to documenting the post-implementation reviews in, the results of the project review included with the Technology Investment/Project Summaries information. This must be updated to show: the current status of the project, actual project costs and benefits, and a reevaluation of the risk level of the project. The review should also be maintained with the project records and a copy should be submitted to the OCIO on request or if required to do so in the approved project plan.

       1.6.5.   The appropriate information must be updated to show any change in the scope of the investment and/or revised costs and benefits over the expected life of the IT asset resulting from the project.

       1.6.6.   The requirements for completing the post implementation reviews are itemized in Appendix F.

DEFINITIONS

Portfolio: Demonstrates the relationships between and among current and planned investments and allows agencies to manage investments in IT as one would manage a portfolio of investments of assets such as real estate or financial instruments (for example, a stock portfolio).

Office of the Chief Information Officer, Washington State
Standard No. 112.10: Managing Information Technology Portfolios

REVISION HISTORY

Date	Action taken
October 2011	Standards reformatted for migration to Office of Chief Information Officer.
April 2002	
May 1999	Standards adopted.

CONTACT INFORMATION

For questions about this policy, please contact your OCIO Information Technology Consultant.

APPROVING AUTHORITY

Chief Information Officer   Date
Chair, Technology Services Board

Office of the Chief Information Officer (OCIO)	POLICY NO. 112
	Managing Information Technology Portfolios

Purpose: Establish the agency Information Technology (IT) portfolio as a primary tool to support IT decision-making.	**Effective Date:** October 1, 2011 **See Also:** Managing Information Technology Portfolios Standards

POLICY STATEMENT

1. **Agencies will document the investment, acquisition, and use of IT via the IT portfolio.**

   1.1. The IT portfolio documentation will comply with statutory and policy requirements and provide sufficient detail for effective IT planning and management.

   1.2. IT documentation will include:

   - Descriptions of the relationships between and among the investments in the portfolio.

   - Plans relating to current and proposed IT investments in support of the agency mission, strategies, and business processes.

   - IT investment analysis and justification documents, including feasibility studies.

   - Risk assessment and risk management plans.

   - Project plans and project management reports.

   - Application documentation and user training materials.

   - Hardware, software, network, and facilities inventories.

   - Budgetary and financial records and reports, including annual agency IT spending.

   - References to the existing Security and Disaster Recovery/Business Resumption plans.

   1.3. The specific content and format of IT documentation may be determined by the agency.

   1.4. Submission of the summary information, as detailed in the Managing IT Portfolios Standards, is required.

   1.5. The agency will make supporting documentation available to the OCIO upon request.

   - Supporting documentation should be maintained by the agency and made available upon request or hyperlinked in the portfolio. The OCIO may require an agency to provide additional information to supplement its portfolio.

2. **Agencies will provide completed agency IT portfolio information to the OCIO in the manner required.**

3. **Agencies will conduct an annual update of the IT portfolio in conjunction with the agency planning and budget processes, and make whatever revisions are necessary for the portfolio to continue to reflect the agency's management and use of IT.**

   - The annual update provides agency executives the opportunity to perform a comprehensive review of IT management and operations, and evaluate the

relationship between IT investments, agency strategies and programs, and the agency budget.

3.1. Agencies will review and update each ongoing level 2 and 3 investment or project, and complete a post-implementation review of any level 2 or 3 investment or project completed since the previous annual update.

    3.1.1. Proposed IT applications are initially evaluated in terms of their merits as potential investments of limited public funds and then, if approved, undergo detailed feasibility study, project planning, and risk assessment before the actual development or acquisition of the IT capability. The scope of these analyses must be commensurate with the nature and scope of the proposed investment.

    3.1.2. Investments that involve significant risk are subject to OCIO or Technology Services Board approval in addition to agency executive approval.

    3.1.3. Projects are continually monitored until they are completed, with summary information about the status of each project included in the project section of the agency's portfolio.

3.2. Agencies will update the portfolio to reflect IT activity within the agency and to support executive decision making within and outside the agency. The following changes should be noted:

- Mission, strategies, programs, business processes, and project changes that affect the agency's use of IT or its plans for IT.
- IT infrastructure changes.
- Significant changes to existing investments/projects.

4. **The head of each agency will provide certification to the Technology Services Board by August 31 of each year, or by the due date of its budget to the Office of Financial Management (whichever is later), that the annual IT Portfolio update has been completed.**

4.1. The letter confirming the annual portfolio update will be included in the agency IT portfolio. It indicates completion of the annual review.

5. **OCIO assessment and approval of agency investment and project proposals will be based primarily on the information included in the agency's IT portfolio and the detailed analyses supporting those major investments and projects.**

- Agencies should exercise due diligence in ensuring that their portfolios remain current between annual IT portfolio updates.

RESPONSIBILITIES

Chief Information Officer (or designee)
- Interpret the policy.
- Ensure policy content is kept current.
- Recommend updates to this policy and related resources as needed.
- Use agency portfolios to assess agency investment and project proposals.

Technology Services Board (TSB)
- Review and approve major policy changes.

Agency Heads
- Responsible for the oversight of their respective agency's management and use of IT resources.
- Ensure annual update of IT portfolio is conducted.
- Submit portfolio update confirmation letter to the TSB by the due date.

DEFINITIONS

Portfolio: Demonstrates the relationships between and among current and planned investments and allows agencies to manage investments in IT as one would manage a portfolio of investments of assets such as real estate or financial instruments (for example, a stock portfolio).

RELATED LAWS AND OTHER RESOURCES

Planning Information Technology Portfolios Policy (111)
Securing Information Technology Assets (141)
Executive Guide to Managing Information Technology Portfolios

REVISION HISTORY

Date	Action taken
October 2011	Policy reformatted for migration to Office of Chief Information Officer.
April 2010	Policy adopted.

CONTACT INFORMATION

For questions about this policy, please contact your OCIO Information Technology Consultant.

APPROVING AUTHORITY

_____

Chief Information Officer   Date
Chair, Technology Services Board

Washington State Department of
Enterprise Services

POLICY # DES-210-01	AGENCY CONTRACT REPORTING (RCW 39.26.210)
Purpose:	This policy provides the following information: 1) Agency contract reporting requirements. 2) Reporting timelines. 3) The required data elements to be reported. 4) Reporting exemptions.
Enabling Legislation: RCW 39.26.210(1)	Effective January 1, 2013, agencies must annually submit to the Department of Enterprise Service (DES) a complete list of all contracts entered into or renewed except for those that are otherwise exempt. This information will be maintained by DES and be made available for public inspection. The reporting period will be for the fiscal year, July 1 through June 30. Agency reports must identify: 1) The contracting agency; 2) The contractor; 3) The purpose of the contract; 4) Effective dates and period of performance; 5) The cost of the contract and the funding source; 6) Any substantive modifications to the contract; and 7) Whether the contract was competitively procured or awarded on a sole source basis.
Contract Reporting Purpose	The purpose of the reporting and display requirements is to foster transparency related to state procurement processes and agency contracts. Vendors, legislators, and the public in general are all interested in knowing how agency spend their funds, how much of those funds are for contracted services, with whom the agencies contract and how these goods and services are procured. Open government not only relies on the ability to collect data but is dependent on and is fostered by the ease in which this data can be readily accessed by all interested parties. Requiring the annual reporting of information related to state contracts and requiring DES to make this information publicly available promotes both of those

	aspects of open government.
Contract Reporting General Requirements:	The following general requirements apply to all agencies that must report under RCW 39.26.210(1). 1) State agencies must annually submit to DES a list of all contracts that the agency has entered into or renewed in the prior fiscal year. 2) The reporting period is for the fiscal year and should reflect the cost of contract expenditures during the fiscal year (July 1-June 30). 3) The report must be submitted to DES no later than September 1st of each year. 4) The report must include any contract executed during the reporting period that has a statement of work or exceeds the Direct Buy limit. 5) The annual list must include all the required data fields for each contract reported.
Required data fields:	Below is a list of the required data fields and a description of the information that each field is intending to capture. 1) Contracting Agency. Field description: The name of the state agency that is a party to the contract. 2) Contractor name. Field description: The name of the contractor as it appears in the contract document, who is the party to the contract. 3) Vendor Identifier: Field description: In order to identify all contracts related to any one vendor, it is important to have an identifier that relates to the vendor. Not all agencies or vendors use the same identifier. This field will require inclusion of either the Universal Business Identifier (UBI) or Tax Identification Number (TIN) or both if available. If neither is available, the agency should include an identifier unique to that contractor. 4) Purpose of the contract. Field description: The subject matter of the contract; the goods or services that the agency is procuring. The field will provide a list of categories with the ability to include an expanded description. 5) Effective dates. Field description: The date the contract becomes effective, not when work actually began. The ending date will be the date upon which no further work may be conducted under the contract or the date the contract term ends or expires. 6) Period of Performance. Field description: The time frame in which the work is to occur or

	when the commodity must be delivered. The period of performance should always begin on or after the contract effective date and end on or prior to the contract expiration date.
	7) The cost of the contract. Field description: The total actual or estimated contract cost over the reporting period. The cost of a contract may differ depending on the contract type. For a commodity contract, the cost of the contract is the cost of the commodity purchased, excluding taxes. If the contract is a services contract, the cost is either the estimated cost of the services, the not to exceed cost listed in the contract or the actual amount paid under the contract. The agency will also have the option to include a brief explanation.
	8) Funding source. Field description: The funding source is the category of funds used for the contract. The funding source is either state funds, federal funds or private grant funds. For contracts that have more than one funding source, the agency will report the most dominate funding source.
	9) Contract Modifications Field description: Contract modifications are substantive changes made to an original contract. A substantive change is one that modifies the cost, scope or period of performance of the original contract.
	10) Whether the contract was competitively procured or awarded as a sole source. Field description: A contract is awarded by either a competitive process or a noncompetitive process. Noncompetitive processes include, sole source, sole source exempt from filing, emergency contracts and direct buy. A competitive process is one where more than one vendor is provided the opportunity to compete for the contract award.
	11) Small Business Status (Optional). Field description: The contractor's status as a small business as identified in the Washington Electronic Business Solution (WEBS) system.
Contract Reporting Exemptions:	Agencies will not be required to report the following: 1) Purchase orders or Field orders 2) Direct Buy contracts except those contracts that include a statement of work. 3) Expert witness agreements. 4) Public works contracts (although agencies are encouraged to do so). 5) Non fiscal agreements which are agreements that do not include a

	monetary component such as a data sharing agreement or confidentiality agreement.
	6) Interlocal agreements and interagency agreements.
	7) Grant and sub-grant agreements.
	8) Loan agreements.
	9) Contracts exempt from disclosure under another state law.
	10) Contracts specifically exempted by the DES director.
Request for Reporting Exemptions	Agencies may also request a reporting exemption for a specific contract or a category of contracts. The request should be in writing, addressed to the DES director, and signed by the agency head. The request must include a detailed explanation of the proposed exemption, why the contract or contract category needs to be exempt, and how granting the request aligns with the intent of the law.
Definitions:	"Click thru agreement" means an on-screen license agreement that is accepted by the user by clicking a button.
	"Contract" means an agreement for goods, commodities, information technology goods and services, personal services, purchased services and client services, as well as software licenses, click thru agreements and equipment maintenance.
	"Non-fiscal agreements" means agreements that do not include a monetary component such as a data sharing agreement or confidentiality agreement.
	"Qualified master contracts" means: 1) DES Master Contracts; and 2) Cooperative contracts that conform to all applicable Washington State procurement laws, rules, policies and trade agreements.
Compliance:	Agencies are expected to submit complete and timely contract reports. The agency's record of compliance will be factored into an agency's risk rating.
FAQ:	Q1: Since the effective date is January 1, 2013, what will be the initial reporting period? A: All contracts with an effective date on or after January 1, 2013 must be reported as well as all current contracts that have been amended with an amendment effective date on or after January 1, 2013. The end date of the initial reporting period will be announced once the DES reporting system is in place. Q2: Will agencies be required to report procurements made using qualified master contracts? A: Yes but only if the use of qualified master contract results in an agency specific contract that includes a statement of work. The agency should

	report the effective dates of the agency specific contract. Q3: Will agencies be required to report Click thru agreements including those that have a fee? A: Yes. Click through agreements may impact other software agreements and therefore must be reported. Q4: Will agencies be required to report P-Card transactions? A: No. The P-Card is a method of payment, not a type of contract. Use of a P-Card does not determine whether the contract is reportable. See "Contract Reporting Exemptions" for those contracts that are exempt from reporting.

Washington State Department of
Enterprise Services

Policy # DES-170-00	COMPLAINTS AND PROTESTS (RCW 39.26.170)
Purpose:	This policy provides the following information: 1) Minimum requirements for a complaint process and a protest process. 2) The criteria for filing a complaint or protest. 3) Agency response requirements and timelines. 4) How to request authority to sign a contract before the protest process is completed.
Enabling Legislation: RCW 39.26.170	Beginning January 1, 2013, agencies with original or delegated authority must have a procurement complaint process and protest process, both of which are clear and transparent. In addition: 1) The complaint process, including the agency response to complaints, must occur before the deadline for bid submissions. 2) The protest process must include a protest period after the apparent successful bidder is announced but before the contract is signed.

Complaint Process Purpose and Requirements:	The complaint process occurs early in the procurement process. The purpose of a complaint process is to settle unresolved vendor issues or concerns that either were not or could not be resolved during the question and answer period. The complaint process allows vendors to focus on the solicitation requirements and evaluation process and raise issues with these processes early enough in the process to allow an agency to correct a problem before bids are submitted and time expended on evaluations. A good complaint process can help reduce or eliminate the number of protests that would later be filed.
	
	The agency's procurement complaint process must meet the following minimum requirements:
	
	1) Vendors must be given an opportunity to submit a complaint to the agency based on any of the following:
	
	   a) The solicitation unnecessarily restricts competition;
	
	   b) The solicitation evaluation or scoring process is unfair or

	flawed; or
	c) The solicitation requirements are inadequate or insufficient to prepare a response.
	2) Vendors must be allowed to submit complaints up to 5 business days prior to the bid response deadline. In addition, agencies can require vendor complaints to meet the following requirements:
	a) Must be in writing.
	b) Must be sent to the procurement coordinator, or designee, in a timely manner.
	c) Should clearly articulate the basis for the complaint.
	d) Should include a proposed remedy.
	3) The procurement coordinator or designee must respond to complaints in writing.
	4) The response to complaints including any changes to the solicitation must be posted on WEBS.
	5) The agency head is to be notified of all complaints and be provided a copy of the agency's response.
	6) The complaint may not be raised again during the protest period.
	7) The agency complaint process does not need to include an appeal process.
Protest Process Purpose and Requirements:	The protest process occurs after the bids are submitted and evaluated. This allows bidders to focus on the evaluation process to ensure its integrity and fairness. Protests can raise issues related to the evaluation process as set out in the solicitation or how it the process was executed. This allows an agency to correct evaluation process errors and problems before a contract is executed.
	The agency's procurement protest process must meet the following minimum requirements:
	1) After the announcement of the apparent successful bidder (ASB), agencies must offer a debriefing conference to any bidder upon request.
	2) Agencies must give bidders a minimum of at least 3 business days after the ASB is announced to request a debriefing conference.
	3) Agencies can require bidder participation in a debriefing conference as a prerequisite for submitting a protest.
	4) Agencies must give bidders at least 5 business days after their debriefing conference to file a protest.

	5) The protest process as a minimum, must allow vendors an opportunity to submit a protest based on any of the following:
	
	   a) A matter of bias, discrimination, or conflict of interest on the part of an evaluator;
	
	   b) Errors in computing the scores; or
	
	   c) Non-compliance with procedures described in the procurement document or agency protest process or DES requirements.
	
	6) Agencies should assign a neutral party that had no involvement in the evaluation and award process to investigate and respond to the protest.
	
	7) Agencies must issue a written protest response no more than 10 business days from receipt of the protest, unless additional time is needed. The agency should notify the protesting bidder if additional time is needed.
	
	8) The agency protest decision is final and no appeal process will be required. If a protesting bidder does not accept the agency protest response, the bidder may try to seek relief from superior court.
	
	9) At the time that the agency protest response is issued, the agency head and the Department of Enterprise Services Director must be provided a copy of the original protest and the agency's response.
	
	10) Small and micro agencies that lack staff to address a protest may request assistance from DES.

Additional Requirements	1) Consistent with RCW 39.26.170, all competitive procurements must include an announcement of the ASB(s). 2) Consistent with RCW 39.26.030, following the announcement of the ASB(s), bid submissions and bid evaluations must be available for public inspection.
Compliance:	Agencies are expected to exercise sound professional judgment in implementing an objective and transparent complaint process and protest process. The agency's record of compliance will be factored into the agency risk assessment.
Exemptions: RCW 39.26.170(3)	The agency may not sign a contract before the protest process is completed except when the Enterprise Services Director grants the agency the authority to do so. Authority will only be granted if there are exigent circumstances that necessitate the contract to be signed. To request an exemption, the agency head must submit the request to the Enterprise Services Director. The request should explain the exigent circumstances and why it would be in the best interest of the state to grant the request.

Definitions:	"Apparent Successful Bidder" is the lowest responsive and responsible Bidder as determined by the bid evaluation process and prior to Bidder negotiations. (See RCW 39.26.160(6)) "Bid" means an offer, proposal, or quote for goods or services in response to a solicitation issued for such goods or services by the department or an agency of Washington state government. (See RCW 39.26.010(2))
FAQ:	Q1: Does the complaint and protest policy apply to low dollar request for quotes (RFQs) in which the lowest bid price determines the award? A: Yes. Q2: What if the agency has an urgent need that cannot accommodate the length of time it takes to fulfill the required complaint and protest timelines? A: Most agency procurement needs may be satisfied through proper planning, direct buy provisions or use of qualified master contracts. However, if DES procurement analysis suggests otherwise, an exemption may be granted or procurement policies may be modified. Q3: Will solicitations released prior to January 1, 2013 be exempt from this policy? A: Yes. Agencies are to follow the related laws, rules, and policies in force at the time when the solicitation was released. Q4: When should a protest bond be required and how do you set the bond limit? A: DES is in the process of developing a protest bond policy and best practices. Until then, agencies should contact DES prior to requiring a protest bond. Q5. What is a debriefing conference and how do I conduct one? A: A debriefing conference provides an opportunity for the bidder to meet with the agency to discuss its bid and evaluation. DES is developing a debriefing conference policy with information on how to conduct a debriefing conference.

Washington State Department of Enterprise Services

POLICY # DES-090-00	DELEGATION OF AUTHORITY (RCW 39.26.090)
Purpose:	This policy provides the following information: 1) The interim delegation of authority to state agencies for the procurement of goods and services. 2) Information and direction on how an agency may request and receive additional delegated authority. 3) Exemptions from the delegated authority requirement. 4) Information on how final delegation of authority will be determined.
Enabling Legislation: RCW 39.26.090	Beginning January 1, 2013 DES is authorized to contract for all goods and services needed to support and maintain agency operations, except as otherwise provided in law. The Director of DES is also charged with establishing policies for delegating authority to state agencies. Delegation policies must be based on a risk assessment process developed by the department and specify restrictions as to dollar amount or specific types of goods and services.
General Delegated Authority:	Effective January 1, 2013 and unless otherwise exempted by law, agencies are delegated authority for the procurement of goods and services according to the criteria outlined in the table below. This delegation is independent of the funding source for the procurement. When projecting contract values, agencies should do so in a manner that is true to the intent of these thresholds.

Agency Size	Commodities (projected amount per purchase event)	Services (projected amount of initial contract term)	Information Technology (projected amount of the initial contract term)
*Micro (Less than 50 FTEs)	$50,000	$50,000	$50,000
*Small (50 – 200 FTEs)	$50,000	$250,000	$250,000
Medium (201 – 500 FTEs)	$50,000	$500,000	$500,000
Large (more than 500 FTEs)	$50,000	$1 million	$1 million

*The delegation to micro and small agencies is limited to those agencies that have "dedicated procurement professionals" performing agency procurements. If the agency does not have procurement professionals on staff, the agency will need to contact DES to obtain its interim authority.

Additional Delegated Authority	Agencies have unlimited delegated authority when purchasing directly from a "qualified master contract".
	If a master contract requires a second tier competition, agencies delegation of authority is:
	1) Unlimited when the contract requires DES to conduct the second tier competition; or 2) Limited to the delegation set forth above if the agency will be conducting the second tier competition.
Additional Requirements:	1) Agencies must use existing "qualified master contracts" unless the contract cannot justifiably satisfy agency needs.
	2) Agencies must satisfy all applicable Washington State procurement requirements when conducting procurements within their delegated authority.
	3) Agencies may implement further restrictions or requirements at the agency level.
	4) Agencies must notify DES in advance regarding procurements that may exceed the agency's delegated authority. DES will consult with the agency to determine whether to conduct the procurement, monitor the agency conducting the procurement or delegate full authority to the agency to conduct the procurement.
	5) For contracts that include a combination of goods and services, apply the category threshold that represents the predominant category for that procurement. For example:
	A Medium sized agency will be contracting for a combination of goods ($40,000) and services ($60,000) for a combined value of $100,000. Because this contract is predominately services ($60,000) and the value is below the delegated threshold for that category, the agency can proceed without further involvement of DES.
	If these values were reversed ($60,000 goods, $40,000 services totaling $100,000), the contract would be predominately goods. Since the value of the goods exceeds the threshold for that category, the agency would not have delegated authority and would need to engage DES.
Information Technology Procurements:	Chapter 43.41A RCW provides the Office of the Chief Information Officer (OCIO) authority over the types of information technology (IT) goods and services agencies may acquire.
	Effective January 1, 2013, DES under Chapter 39.26 RCW will establish how goods and services are to be acquired.
	Therefore, in addition to DES delegated authority, agencies may also be required to receive OCIO approval for certain IT goods and services as required by OCIO Policy #121. Agencies should coordinate with their assigned OCIO consultant. DES will also be available to assist agencies.

Additional Delegated Authority Requests	In addition to the delegations of authority, agencies may request additional delegated authority. To do so the agency head must submit the request to the DES director with answers to the following questions:
	1) What is the purpose, the scope and the specific nature of the request?
	2) What is the projected dollar value of the request, including analysis that determined the cost estimate?
	3) How might the state/agency benefit should the request be approved?
	4) What are the risks should the request be denied?
	5) Does the agency possess the necessary experience and expertise to conduct the procurement and/or to manage the contract? If so, explain.
	6) What measures have been established to ensure that all applicable procurement requirements will be met?
	7) Contact information of the person responsible for implementing the requested delegation of authority.
Compliance:	DES may at any time and at its discretion withdraw or modify an agency's delegated authority based upon its procurement compliance, performance, and/or risk profile. Agencies are encouraged to implement agency-wide requirements and processes that best ensure that the agency conforms to applicable procurement requirements.
Exemptions:	1) Institutions of Higher Education having independent purchase authority under RCW 28B.10.029.
	2) Emergency Purchases that qualify under RCW 39.26.130.
	3) Exemptions as outline under RCW 39.26.100.
	4) Interagency agreements.
	5) Interlocal agreements.
Definitions:	"Dedicated procurement professional" means a state employee possessing the knowledge, skills, and abilities through training and education who is able to develop and draft transactionally relevant procurement and contract documents to support agency operations.
	"Qualified master contracts" means: 1) DES Master Contracts. 2) Cooperative contracts that conform to all applicable Washington State procurement laws, rules, policies and trade agreements.
	"Information technology" under RCW 43.41A.006(8) includes, but is not limited to, all electronic technology systems and services, automated information handling, system design and analysis, conversion of data, computer programming, information storage and retrieval, telecommunications, requisite system controls, simulation, electronic commerce, and all related interactions between people and machines. DES will be coordinating with the OCIO to provide additional clarification.

FAQs:	Q1: How is delegated authority to be applied to a project that may include multiple contracts? A: For those projects that warrant the creation of multiple contracts, the dollar value of each contract will determine which delegated authority applies. Q2: How are procurements that are already underway to be handled once chapter 39.26 RCW becomes effective on January 1, 2013? A: The applicable procurement authority in existence prior to January 1, 2013 will apply to procurements that were advertised prior to January 1, 2013 but have not been awarded. All applicable procurements advertised after January 1, 2013 must comply with chapter 39.26 RCW.

Washington State Department of Enterprise Services

POLICY # DES-125-03	DIRECT BUY PROCUREMENTS/PURCHASES (RCW 39.26.125)
Purpose:	This policy provides the following information: 1) An established dollar threshold in which agencies may acquire goods and services directly from a vendor without requiring a competitive process. 2) Implementation requirements, guidelines, and exemptions for direct buy purchases.
Enabling Legislation: RCW 39.26.125 (3)	Beginning January 1, 2013, the Department of Enterprise Services (DES) director is required to establish policies for direct buy purchases/procurements. Direct buy purchases are exempt from competitive solicitation requirements.
Direct Buy Purchase Authorization:	Effective January 1, 2013, agencies are authorized to purchase goods and services up to a cost of $10,000 (excluding sales tax) directly from a vendor and without competition. In addition, agencies are authorized to purchase goods and services up to a cost of $13,000 (excluding sales tax) directly from a vendor and without competition if the purchase is being made from a microbusiness, minibusiness, or small business as those terms are defined by RCW 39.26.010 (17), (18) and (21).
Additional Requirements:	1) Agencies must use existing "qualified master contracts" before engaging in a direct buy. Only when an existing qualified master contract cannot justifiably satisfy agency needs may the agency make a direct buy purchase. 2) Agencies are encouraged to buy from in-state small businesses to include certified minority, women and veteran owned businesses. 3) Unless otherwise exempt, procurements that exceed the direct buy limit must be competitively awarded, unless otherwise exempt from competition. 4) Agencies may not unbundle or manipulate a purchase to have the purchase qualify as a direct buy procurement to avoid using a competitive process.
Information Technology Procurements:	All applicable information technology related procurements must conform to OCIO Policy #121. Agencies may need to coordinate with their assigned OCIO consultant. DES will also be available to assist agencies.

Compliance:	Agencies are to exercise sound professional judgment in implementing direct buy. An agency's record of compliance with the direct buy policy will be a factor in an agency's risk assessment.
Definitions:	"Direct Buy" means a procurement not requiring a competitive process. "Qualified Master Contracts" means: 1) DES Master Contracts. 2) Cooperative contracts that conform to all applicable Washington State procurement laws, rules, policies and trade agreements. DES will maintain a list of cooperative contracts that meet state requirements.
Best Practice	Agencies should monitor repetitive purchases. When warranted, agencies should pursue an aggregated buy or notify DES of a potential master contract opportunity.

Washington State Department of Enterprise Services

POLICY # DES-130-00	EMERGENCY PROCUREMENTS/PURCHASES (RCW 39.26.130)
Purpose:	This policy provides the following information: 1) Emergency procurement criteria and qualifications. 2) Emergency procurement reporting requirements and timelines. 3) Emergency procurement reporting exemptions.
Enabling Legislation: RCW 39.26.130	Beginning January 1, 2013 and unless otherwise exempt, the agency head must submit written notification of an emergency procurement within three business days to the Department of Enterprise Services (DES) director. To qualify as an emergency procurement, the event must represent a set of unforeseen circumstances beyond the control of the agency that either: (a) Presents a real, immediate, and extreme threat to the proper performance of essential functions; or (b) May reasonably be expected to result in material loss or damage to property, bodily injury, or loss of life, if immediate action is not taken.
Emergency Procurement Reporting Requirements:	Effective January 1, 2013, all emergency procurements must be reported using the DES Sole Source Contract Database (SSCD) within 3 business days of initiating the emergency procurement. The SSCD will prompt the agency to provide the following information: 1) An overview of the nature of the emergency including relevant circumstances. 2) A description of the threat to the health or safety of individuals, property, or essential state functions if immediate action is not taken to include an estimate of the potential material loss or damage. 3) An account of how the contractor alleviated or eliminated the emergency to include a description of what the consequences would have been if the emergency action had not been taken and the risks associated with inaction. 4) A summary of the contractor's qualifications, experience and background to provide the emergency service and the basis on which this contractor was selected over other qualified firms. 5) Specify the costs, fees, or rates for the purchase. 6) An uploaded copy of an Emergency Memo that has been signed by the agency head.

Additional Requirements	1) Agencies are always expected to utilize existing qualified master contracts except when the contract cannot justifiably satisfy agency needs. The agency needs includes the ability to provide a timely response to an emergency. 2) The duration of the emergency contract must not extend beyond the time needed to resolve the immediate threat. 3) Emergency procurements are only to be conducted for legitimate and qualified emergencies. Emergency procurements are not a substitute to avoid competition or mitigate for the time needed to competitively procure the goods or services.
Transparency Requirements:	RCW 39.26.130(2) requires that within 3 business days of commencing work or executing the emergency contract, whichever comes first, a state agency must make the emergency contract available for public inspection. The state agency may either post the emergency contract on the agency website or post summary information that includes directions for obtaining a copy of the emergency contract. DES will be working on developing a state emergency contracts web page where all agencies will be able to post emergency contract information. This will take the place of agencies posting the information on their separate websites.
Compliance:	Emergency procurements are not approved by DES. However, DES will review agency records for compliance with emergency procurements requirements as part of the agency's risk assessment. Compliance may influence an agency's delegated authority.
Exemptions:	Agencies are not required to report to DES an emergency procurement that qualifies as a "Direct Buy" procurement. See POLICY # DES-125-03.
Definitions:	"Qualified master contracts" means: 1) DES Master Contracts. 2) Cooperative contracts that conform to all applicable Washington State procurement laws, rules, policies and trade agreements. DES will maintain a list of cooperative contracts that meet state requirements.
Best Practice:	Agencies are also encouraged to keep a detailed emergency contract file that may include pictures, video, receipts and other related information that may be useful in securing emergency financial aid, filing insurance claims or complying with Federal Emergency Management Agency requirements.

Washington State Department of Enterprise Services

Policy # DES-140-00	SOLE SOURCE CONTRACTS (RCW 39.26.140)
Purpose:	This policy provides the following information: 1) Requirements for justifying a sole source contract. 2) Vendor notification requirements. 3) Initiating the Department of Enterprise Services (DES) sole source contracting approval process. 4) An overview of the DES sole source contracting approval process. 5) Satisfying sole source contracting transparency requirements. 6) Sole source contracting exemptions.
Enabling Legislation: RCW 39.26.140	Effective January 1, 2013 and unless otherwise exempt, all agency sole source contracts must: 1) Be submitted to DES, with supporting justification, not less than 10 working days prior to the contract start date. 2) Be approved by DES before the contract becomes binding, services are performed and goods are received. 3) Be made available for public inspection not less than 10 working days prior to the contract start date. In addition, notice of all agency sole source contract opportunities must be posted on the state's enterprise vendor registration and bid notification system (currently the Washington Electronic Business Solution (WEBS)) for at least five (5) working days.
Sole Source Determination and Justification:	It is the intent of the state to promote open competition and transparency for all contracts for goods and services. If an agency concludes that a sole source contract is justified and necessary, the agency must: 1) Validate that the proposed contract meets the sole source definition in RCW 39.26.010 (22). 2) Verify a competitive process is not warranted. See Vendor Notice below. 3) Prepare the sole source contract and all related supporting documentation necessary to initiate the DES approval process.
Vendor Notice:	In addition to submitting the required supporting documentation, vendors must be given notice and an opportunity to demonstrate that a sole source contract is not justified. Accordingly and unless otherwise exempt, state law requires that at a minimum, sole source contract opportunities must be

Vendor Notice continued:	posted on <u>WEBS</u>. Agencies must:
	
	1) Use/choose applicable WEBS commodity codes for the product or services being procured including those used by the prospective sole source vendor.
	2) Post a notice of intent to award a sole source contract on WEBS for not less than 5 working days. The notice must include:
	
	   a. A description of the purpose and scope of the contract.
	   b. The criteria or rationale justifying the sole source contract.
	   c. The name of the prospective contractor.
	   d. The projected contract value.
	   e. The period of performance, including options for extensions.
	   f. Process for vendor inquiries or responses, including timelines and requirements.

Initiating DES Sole Source Contract Approval Process:	To initiate the DES approval process, agencies are to utilize the DES <u>Sole Source Contract Database</u> (SSCD). The SSCD will prompt the agency to: 1) Respond to the sole source justification questionnaire. 2) Submit evidence demonstrating the sole source contracting opportunity has been posted on <u>WEBS</u>. 3) Upload a copy of the sole source contract.
DES Approval Process	Unless otherwise exempt, RCW <u>39.26.140</u>(2) states that no sole source contract will be binding unless it is approved by DES. The statute also requires the submittal to DES be not less than 10 working days to enable DES to process sole source contract filings. Agencies are encouraged to budget ample lead time to accommodate the DES approval process, vendor notice requirements, and transparency requirements. In determining whether to approve a sole source contract filing, DES will review all information submitted including vendor challenges and the agency response. Any sole source contract set to begin any time prior to or during the DES processing period will be flagged as a "late filing" and will not receive approval even if all other sole source criteria has been satisfied.
Transparency for the Public:	RCW <u>39.26.140</u>(1) requires that prior to the contract start date, agencies must make sole source contracts available for public inspection for a period of not less than 10 working days. As an interim solution, agencies must post on the agency website either the sole source contract(s) or notice and instructions on how to obtain a copy of sole source contracts. For audit purposes, agencies are encouraged to include in their contract file evidence (e.g. screen print out of webpage) that the 10 business day posting requirement has been met. DES will be working on developing a state sole source contracts web page where all agencies will be able to post sole source contract information. This will take the place of agencies posting the information on their

	separate websites.
DES Sole Source Contract Amendment Approval	All sole source contract amendments must also be filed with and receive prior approval except when changes are minor or technical in nature. Contract amendments will not need to be posted on WEBS or require a 10 business day public inspection period.
Exemptions:	The following types of contracts are exempt from this Sole Source Contracts policy: 1) Qualified Master Contracts and Direct Buy procurements. 2) Qualified contracts with Community Rehabilitation Programs under RCW 39.26.230. 3) Original equipment manufacturer (OEM) maintenance service contracts and parts purchases when procured directly from the OEM. 4) Software maintenance and support services when procured from the proprietary owner of the software. The procurement of software maintenance and support from third party vendors is not exempt from this policy. 5) Contracts where the vendor is specifically required by a grant or legislation. 6) Expert witness contracts with the Attorney General's Office, or agencies with administrative adjudicative authority. 7) Contracts for medical, surgical and dental decisions made by medical professionals. 8) Contracts related to educational curriculum. 9) Contracts with Correctional Industries established under RCW 39.26.251. 10) Contracts related to collaborative research. 11) Interagency and interlocal agreements. 12) Contracts for services related to banking supervision. 13) Postal and postal service when not using consolidated mail. 14) Utilities such as garbage, heat, sewer, cable television, power, water, fire protection and recycle services. 15) Contracts and procurements related to professional development such as conferences, seminars, professional licenses and memberships, professional organizations, and professional publications. 16) Replacement or repair of rental equipment when required by the rental agreement. 17) Contracts with instate nonprofit agencies for the blind under RCW 19.06.020. 18) Contracts awarded by institutions of higher education from non-state funds.
Request for Exemptions:	Agencies may request an exemption for a specific contract or a category of

Request for Exemptions continued:	contracts. Such requests are to be addressed to the DES director and be signed by the agency head. The request must include a detailed explanation of the proposed exemption and how granting the request aligns with the intent of the law.
Information Technology Contracts:	All applicable information technology (IT) related sole source contracts must also conform to OCIO Policy #121 and may require advanced approval. Agencies may need to coordinate with their assigned OCIO consultant. DES will also be available to assist.
Compliance:	Agency sole source contracting profile and compliance including the requirements of this policy will be a consideration in the agency's risk rating and may influence the agency's delegation of authority.
Definitions:	"Approval" means that all sole source contracting requirements have been met and the contract may go into effect.
	"Disapproval" means that all sole source contracting requirements have not been met. Either changes or competition or both may be warranted.
	"Qualified master contracts" means: 1) DES Master Contracts. 2) Cooperative contracts that conform to all applicable Washington State procurement laws, rules, policies and trade agreements. DES will maintain a list of cooperative contracts that meet state requirements.
	"Non-State Funds" means funds provided by other than a state source, such as general fund appropriation or other fee generated funds. Contracts funded by non-state funds means contracts where over 50% of the funding comes from non-state sources.
	"Sole source" means a contractor providing goods or services of such a unique nature or sole availability at the location required that the contractor is clearly and justifiably the only practicable source to provide the goods or services.
	"Software Maintenance and Support" means services (maintenance) provided by a Licensor (proprietary owner) of software products to Licensee including, but not limited to, fixes, upgrades and the like to the software code. Technical services (support) may be included or sold as a separate offering by the Licensor and are covered under this exemption. This exemption *does not include* maintenance or support services provided by or through a third party.
	"Collaborative research" means research conducted by an agency or institution of higher education with another public or private entity.
Frequently Asked	Q1 : If DES does not provide a decision within 10 business days of the filing, does the sole source contract automatically become approved?

Questions: Frequently Asked Questions continued:	A: No. The goal of DES is to process all requests within 10 business days. There may be circumstances in which additional time will be required. DES will notify the agency of any delays or need for additional time. Q2: May the 5 business days advertising requirement, the 10 business days approval process and the 10 business days public inspection posting requirement run concurrently? A: Yes. Q3: Are agencies required to report client service contracts? A: No. Client service contracts are exempt from competition and should not be reported as sole source contracts. Q4: Rather than posting on the agency website, can't there be a central repository made available where all sole source contracts may be made available for public inspection? A: DES will be working toward this end but for now and to meet statutory requirements, sole source contract are to be made accessible directly from the agency. Q5: When would a grant require an agency to contract with a specific vendor? A: An agency may name a firm or individual in the written grant application to perform specific services or provide specific goods. If the approval from the funding source and receipt of funds requires the agency to contract with the named vendor, that contract is not required to be competitively awarded, filed with DES, or require approval by DES.

Washington State Department of Enterprise Services

POLICY # DES-090-00	DELEGATION OF AUTHORITY (RCW 39.26.090)
Purpose:	This policy provides the following information: 1) The interim delegation of authority to state agencies for the procurement of goods and services. 2) Information and direction on how an agency may request and receive additional delegated authority. 3) Exemptions from the delegated authority requirement. 4) Information on how final delegation of authority will be determined.
Enabling Legislation: RCW 39.26.090	Beginning January 1, 2013 DES is authorized to contract for all goods and services needed to support and maintain agency operations, except as otherwise provided in law. The Director of DES is also charged with establishing policies for delegating authority to state agencies. Delegation policies must be based on a risk assessment process developed by the department and specify restrictions as to dollar amount or specific types of goods and services.
General Delegated Authority:	Effective January 1, 2013 and unless otherwise exempted by law, agencies are delegated authority for the procurement of goods and services according to the criteria outlined in the table below. This delegation is independent of the funding source for the procurement. When projecting contract values, agencies should do so in a manner that is true to the intent of these thresholds.

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*The delegation to micro and small agencies is limited to those agencies that have "dedicated procurement professionals" performing agency procurements. If the agency does not have procurement professionals on staff, the agency will need to contact DES to obtain its interim authority.

Additional Delegated Authority	Agencies have unlimited delegated authority when purchasing directly from a "qualified master contract".

If a master contract requires a second tier competition, agencies delegation of authority is:

1) Unlimited when the contract requires DES to conduct the second tier competition; or
2) Limited to the delegation set forth above if the agency will be conducting the second tier competition. |
| Additional Requirements: | 1) Agencies must use existing "qualified master contracts" unless the contract cannot justifiably satisfy agency needs.

2) Agencies must satisfy all applicable Washington State procurement requirements when conducting procurements within their delegated authority.

3) Agencies may implement further restrictions or requirements at the agency level.

4) Agencies must notify DES in advance regarding procurements that may exceed the agency's delegated authority. DES will consult with the agency to determine whether to conduct the procurement, monitor the agency conducting the procurement or delegate full authority to the agency to conduct the procurement.

5) For contracts that include a combination of goods and services, apply the category threshold that represents the predominant category for that procurement. For example:

    A Medium sized agency will be contracting for a combination of goods ($40,000) and services ($60,000) for a combined value of $100,000. Because this contract is predominately services ($60,000) and the value is below the delegated threshold for that category, the agency can proceed without further involvement of DES.

    If these values were reversed ($60,000 goods, $40,000 services totaling $100,000), the contract would be predominately goods. Since the value of the goods exceeds the threshold for that category, the agency would not have delegated authority and would need to engage DES. |
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Effective January 1, 2013, DES under Chapter 39.26 RCW will establish how goods and services are to be acquired.

Therefore, in addition to DES delegated authority, agencies may also be required to receive OCIO approval for certain IT goods and services as required by OCIO Policy #121. Agencies should coordinate with their assigned OCIO consultant. DES will also be available to assist agencies. |

Additional Delegated Authority Requests	In addition to the delegations of authority, agencies may request additional delegated authority. To do so the agency head must submit the request to the DES director with answers to the following questions: 1) What is the purpose, the scope and the specific nature of the request? 2) What is the projected dollar value of the request, including analysis that determined the cost estimate? 3) How might the state/agency benefit should the request be approved? 4) What are the risks should the request be denied? 5) Does the agency possess the necessary experience and expertise to conduct the procurement and/or to manage the contract? If so, explain. 6) What measures have been established to ensure that all applicable procurement requirements will be met? 7) Contact information of the person responsible for implementing the requested delegation of authority.
Compliance:	DES may at any time and at its discretion withdraw or modify an agency's delegated authority based upon its procurement compliance, performance, and/or risk profile. Agencies are encouraged to implement agency-wide requirements and processes that best ensure that the agency conforms to applicable procurement requirements.
Exemptions:	1) Institutions of Higher Education having independent purchase authority under RCW 28B.10.029. 2) Emergency Purchases that qualify under RCW 39.26.130. 3) Exemptions as outline under RCW 39.26.100. 4) Interagency agreements. 5) Interlocal agreements.
Definitions:	"Dedicated procurement professional" means a state employee possessing the knowledge, skills, and abilities through training and education who is able to develop and draft transactionally relevant procurement and contract documents to support agency operations. "Qualified master contracts" means: 1) DES Master Contracts. 2) Cooperative contracts that conform to all applicable Washington State procurement laws, rules, policies and trade agreements. "Information technology" under RCW 43.41A.006(8) includes, but is not limited to, all electronic technology systems and services, automated information handling, system design and analysis, conversion of data, computer programming, information storage and retrieval, telecommunications, requisite system controls, simulation, electronic commerce, and all related interactions between people and machines. DES will be coordinating with the OCIO to provide additional clarification.

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